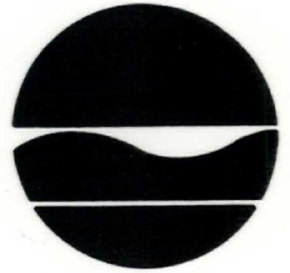


* REVIEWED 07 JULY 94
E. P. PRUDER



PRELIMINARY SITE ASSESSMENT
REPORT

Steck and Philbin Development Co.
Town of Smithtown
Suffolk County, New York
(Site No. 152096)

ERCLIS

ID # NY0000007419



Dvirka and Bartilucci
Consulting Engineers

286147



MARCH 1994

**PRELIMINARY SITE ASSESSMENT
REPORT**

(PSA)

**STECK AND PHILBIN DEVELOPMENT CO.
TOWN OF SMITHTOWN
SUFFOLK COUNTY, NEW YORK**

(SITE REGISTRY NO. 152096)

VERCIN ID # NY 000 007419

PREPARED FOR

**NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION**

BY

**DVIRKA AND BARTILUCCI
CONSULTING ENGINEERS
SYOSSET, NEW YORK**

MARCH 1994

**PRELIMINARY SITE ASSESSMENT
STECK AND PHILBIN DEVELOPMENT CO.**

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S.0 EXECUTIVE SUMMARY

As part of New York State's program to investigate and remediate hazardous waste sites, the New York State Department of Environmental Conservation (NYSDEC) has entered into a contract with the firm of Dvirka and Bartilucci Consulting Engineers of Syosset, New York to conduct a preliminary site assessment (PSA) for the Steck and Philbin Development Company site located in the Town of Smithtown, Suffolk County, New York.

This document, entitled Preliminary Site Assessment Report for Steck and Philbin Development Company site, has been prepared in accordance with NYSDEC Technical and Administrative Guidance Memoranda. The objective of this PSA is to document disposal of hazardous waste, determine if groundwater has been contaminated on-site and the nature of such contamination resulting from disposal of unacceptable construction and demolition (C&D) wastes.

The PSA investigation comprised a soil vapor survey, installation of four groundwater monitoring wells and sampling of subsurface soil from one monitoring well boring and groundwater from the four monitoring well locations.

The soil vapor survey detected elevated concentrations of soil vapors (methane gas) at several locations on-site.

The groundwater analytical results (Target Compound List +30 analyses) indicate that groundwater is not significantly contaminated. No semivolatile organic compounds, pesticides or PCBs were detected above the NYSDEC Class GA groundwater standards or guidelines in on-site groundwater. A few volatile organic compounds, benzene and toluene, were detected slightly above groundwater standards. Several inorganic constituents (antimony, chromium, iron, lead, manganese, magnesium and sodium) were detected in the groundwater above their respective standards, however, high sample turbidities and the resultant increase in particulate material in the samples may have contributed to the elevated concentrations.

Based on the review of historical information and the results of the soil vapor survey, subsurface soil samples and groundwater samples and the limited understanding of the groundwater flow, there does not appear to be significant contamination at the Steck and Philbin Development Company site which could be attributed to disposal of hazardous waste.

As a result of the findings of this site assessment, there does not appear to be a need for any additional investigation under the New York State Superfund Program. There is no evidence of significant contamination or documentation of disposal of hazardous waste at this site. However, additional investigation regarding site hydrogeology and groundwater quality should be conducted under 6NYCRR Part 360 during closure monitoring for the site. In particular, it is recommended that groundwater samples be collected and filtered for analysis of dissolved inorganic constituents. It is recommended that periodic/annual groundwater monitoring be conducted to detect the possible release of contaminants in the future.

In addition, several aspects of the site hydrogeology and groundwater quality should be highlighted for further investigation. Due to the potential for an upgradient pumping well to be exerting an influence over the flow of shallow groundwater on-site, the groundwater flow direction and influence of the pumping well should be established. Further definition of vertical groundwater flow should also be conducted. In addition, groundwater quality data collected from the on-site wells should be compared to data available for monitoring wells located immediately upgradient to determine the impact of upgradient sources on the site.

1.0 INTRODUCTION

1.1 Project Objective

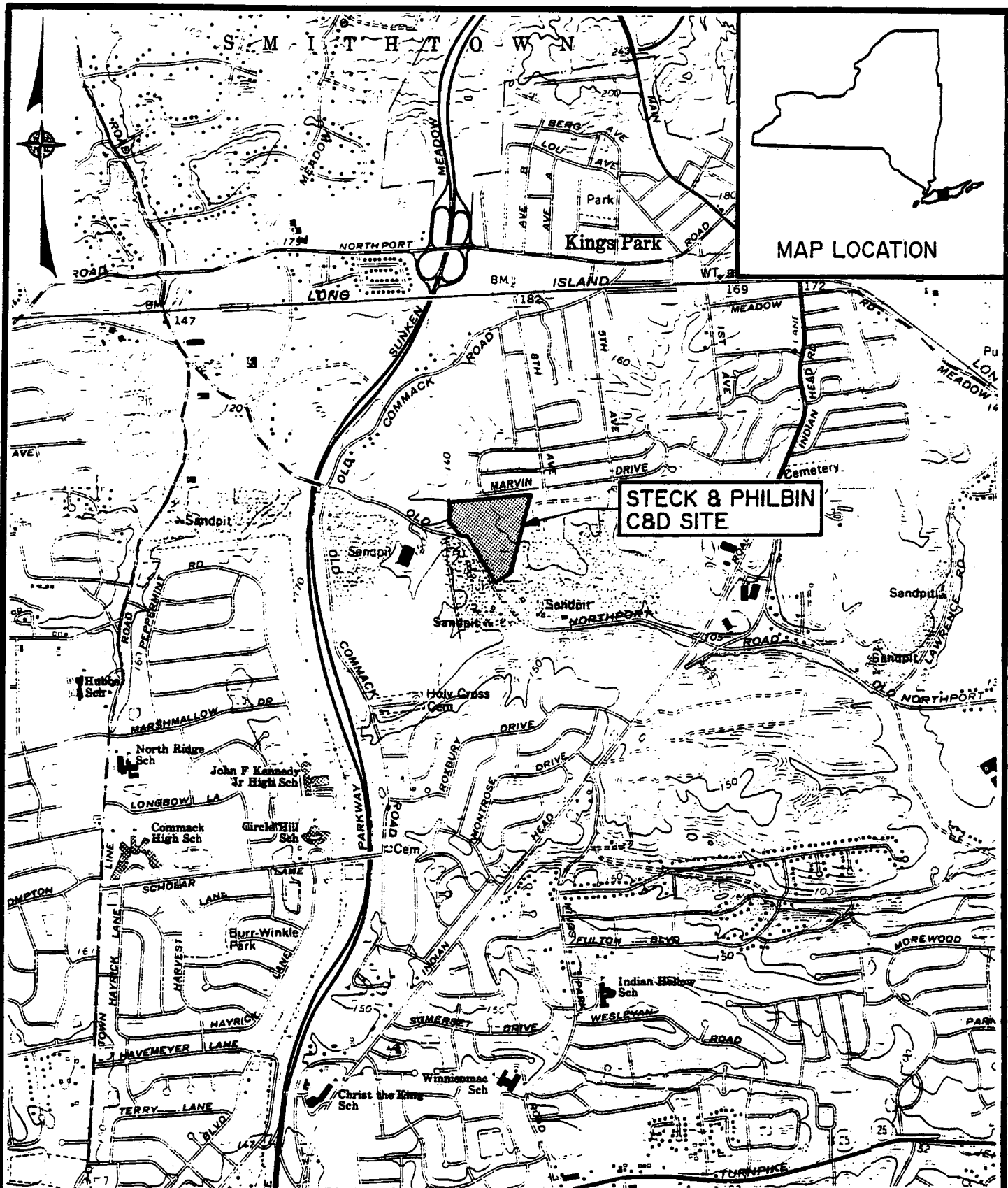
As part of New York State's program to investigate and remediate hazardous waste sites, the New York State Department of Environmental Conservation (NYSDEC) has entered into a contract with the firm of Dvirka and Bartilucci Consulting Engineers of Syosset, New York to conduct a preliminary site assessment (PSA) for the Steck and Philbin Development Company Site (for disposal of construction and demolition debris) located in the Town of Smithtown, Suffolk County, New York.

The objective of this site assessment is to document hazardous waste disposal and evaluate possible subsurface and groundwater contamination resulting from nonconstruction and demolition (C&D) material potentially disposed in the landfill.

1.2 Site Background

1.2.1 Site Location, Ownership and Access

The Steck and Philbin Development Company C&D site is located in Smithtown, Suffolk County, New York (see Figure 1-1). The C&D site appears on the USGS Topographic Quadrangle Map - Greenlawn 7.5-minute Quadrangle at Latitude 40°52'10"/Longitude 73°16'08". The site is approximately 21 acres in size with the majority of the site observed during the PSA field activities to be used for C&D disposal. The site, which was previously owned and operated by the Steck and Philbin Development Co., was no longer active and was in the process of being sold at the time of this investigation. The site is fenced and primary access to the site is off of Old Northport Road (see Figure 1-2).



Source: U.S.G.S. NORTHPORT, N.Y., SAINT JAMES, N.Y.,
CENTRAL ISLIP, N.Y. & GREENLAWN, N.Y. QUADRANGLES

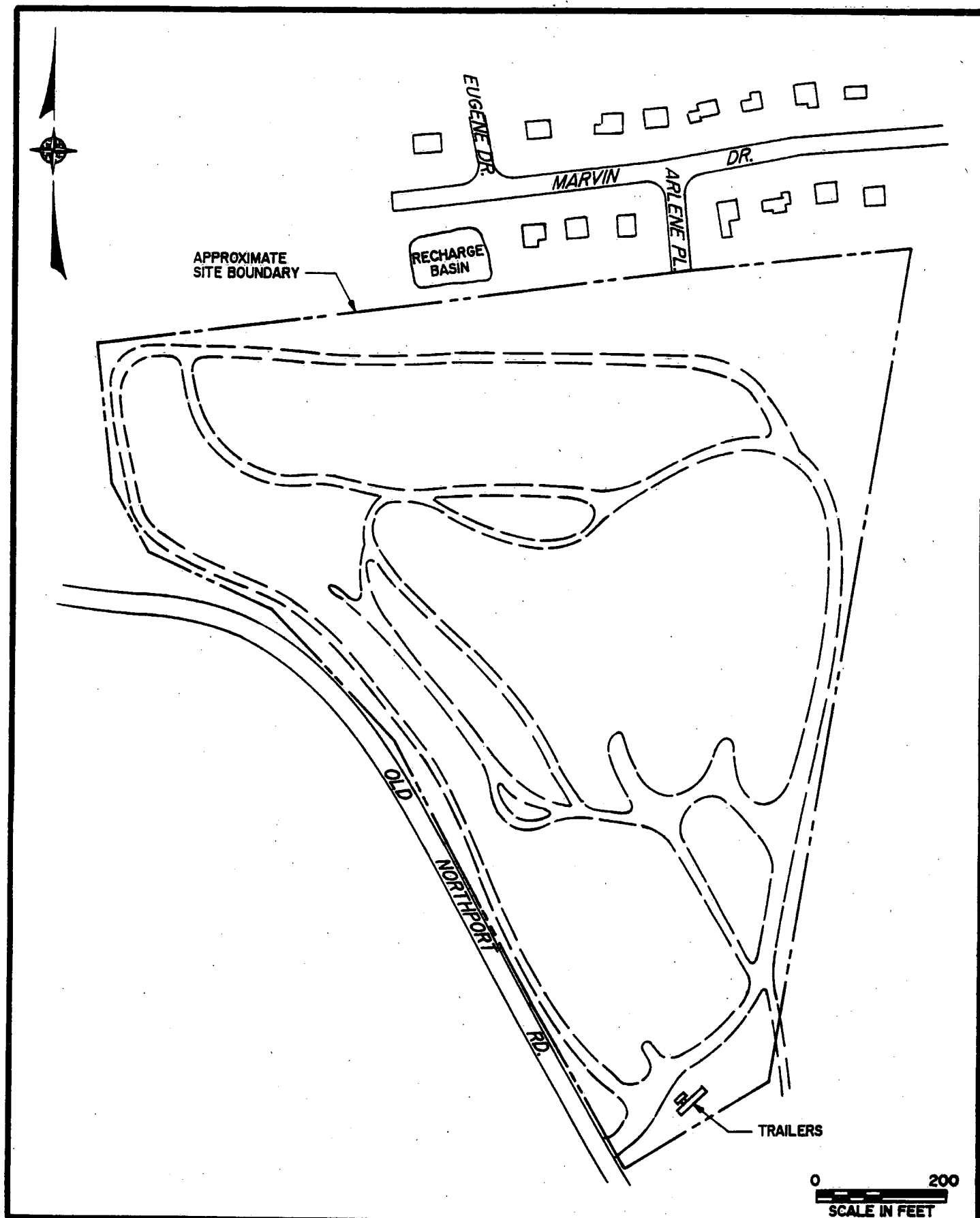
0 2000
SCALE IN FEET

STECK & PHILBIN C&D SITE
SMITHTOWN, NEW YORK

SITE LOCATION MAP



FIGURE 1 - 1



STECK & PHILBIN C&D SITE
SMITHTOWN, NEW YORK

SITE MAP

FIGURE 1 - 2

1.3 Site Description

The Steck and Philbin Development Company site is located on Old Northport Road in Kings Park, New York. The site is approximately 21 acres in size and lies in an area which has been mined extensively for sand and gravel. An unknown quantity of C&D fill is present at the site. The majority of the C&D fill area is covered with exposed pieces of wood, trees and cement blocks. The slopes off the sides of the fill are steep on all sides to the surrounding terrain except to the north where the former sand and gravel pit has been filled in to the original elevation resulting in the C&D material abutting the residential area at a similar elevation.

The area directly north of the site is residential. The western portion of the site is bordered by Old Northport Road. Several industrial facilities, including a sand mining facility, are located along Old Northport Road. Directly south of the site is also industrial. The eastern edge of the site is bordered by a sand mining pit which was inactive at the time of the investigation.

Two Town of Smithtown municipal solid waste landfills are located in the immediate vicinity of the site. One landfill is located off of Old Northport Road approximately 1/4 mile southeast of the site. The other landfill, also approximately 1/4 mile from the site, is located to the southwest. A public water supply wellfield is located approximately 3/4 mile downgradient from the site and to date has not been impacted.

1.4 Site History

As early as June 1981, a permit had been issued to Northeast Mines, Inc. for general grading and excavating at the site. Subsequent permits were issued through 1986 for mining at this location. In January 1983, the Steck and Philbin Development Company was provided with a letter from NYSDEC serving as a "Conditional - No Permit Necessary" to operate a transfer station at the site. Conditions provided with the letter indicated all materials not recyclable must be sent to an approved site for disposal; only nonputrescibles would be accepted at the transfer station and that all town ordinances shall be adhered to. In April 1983, the site was issued a

New York State Part 360 permit to operate as a C&D processing/disposal facility. Permits were later renewed with special conditions such as limiting hours of operation, cover requirements and types of acceptable material. The site was permitted to accept concrete, brick, stone, rubble, plaster, tires and stumps. Putrescible material could not be accepted. Under the permit, a final cover comprising 3 feet of clean fill (sand) would be placed on top of the C&D material and seeded. No debris was to be buried within 10 feet of the groundwater.

In March 1985, the Chief Permit Administrator for NYSDEC sent a letter to Steck and Philbin Development Company indicating that their permit would not be renewed and their current permit was no long in force. Steck and Philbin had been previously requested to provide additional information such as a site plan and a vicinity plan before a permit could be renewed. Finally, a permit was renewed in February 1986, but was allowed to expire in December 1986. During the period of March 1985 to February 1986, the facility is reported to have continued operations without a permit.

During the period of time that the C&D landfill was operated, the facility was cited with various permit violations including odors, burning of refuse, refuse protruding through daily cover, disposal of paper, filling too close to the property boundary, mining, filling nonpermitted areas and blowing dust. In addition, the filled area was much larger than the original permitted area. Based upon review of available documentation, there is not indication that hazardous materials have been disposed of at this facility. A facility inspection conducted by NYSDEC in August of 1986 indicated the presence of unacceptable material such as roofing materials, grass clippings, sheet rock, shingles and plastic foam pipe insulation on-site. However, there is no documentation that these materials were ever landfill on-site. In October 1990, the owners of Steck and Philbin were fined and the site was ordered closed by NYSDEC as a result of a hearing before an Administrative Law Judge. The order has not been signed by the owners and further legal action was pending as of the time of this investigation. The facility was subsequently closed and the owners were directed to conduct groundwater monitoring, implement gas and odor control, regrade the site and install a low permeability cap.

2.0 INVESTIGATION METHODS

The field program for the Steck and Philbin Preliminary Site Assessment (PSA) consisted of a variety of investigation methods to determine if the landfill is contributing to the degradation of groundwater quality downgradient of the site. The methods utilized included a geophysical survey, a soil gas investigation and the construction and sampling of four on-site monitoring wells. The work was performed in September and early October 1993.

2.1 Geophysical Survey

A magnetic survey was performed at the four proposed monitoring well locations. The purpose of this survey was to determine if any underground objects that would hinder drilling operations were present at each location. The magnetic survey was conducted on a 5-foot by 5-foot grid in an approximately 30-foot by 30-foot area centered where possible over the proposed monitoring well location. Monitoring wells MW-1 and MW-2 were located adjacent to a chain link fence and the grid was placed on the site side of the fence. The total magnetic field data for MW-1 and MW-2 were affected by their proximity to the chain link fence and no conclusions regarding the presence of buried objects at these two locations could be made. However, at the owner's request, these two monitoring wells were not relocated both to prevent obstruction of future planned construction activities associated with closure and to maintain the position of the monitoring points relative to the anticipated groundwater flow direction. Visual observations made at these locations indicated that the proposed monitoring points were beyond the limits of on-site fill, however, 5 feet of fill material was found at the ground surface at MW-1. The geophysical survey is presented in Appendix A of this report.

2.2 Soil Vapor Investigation

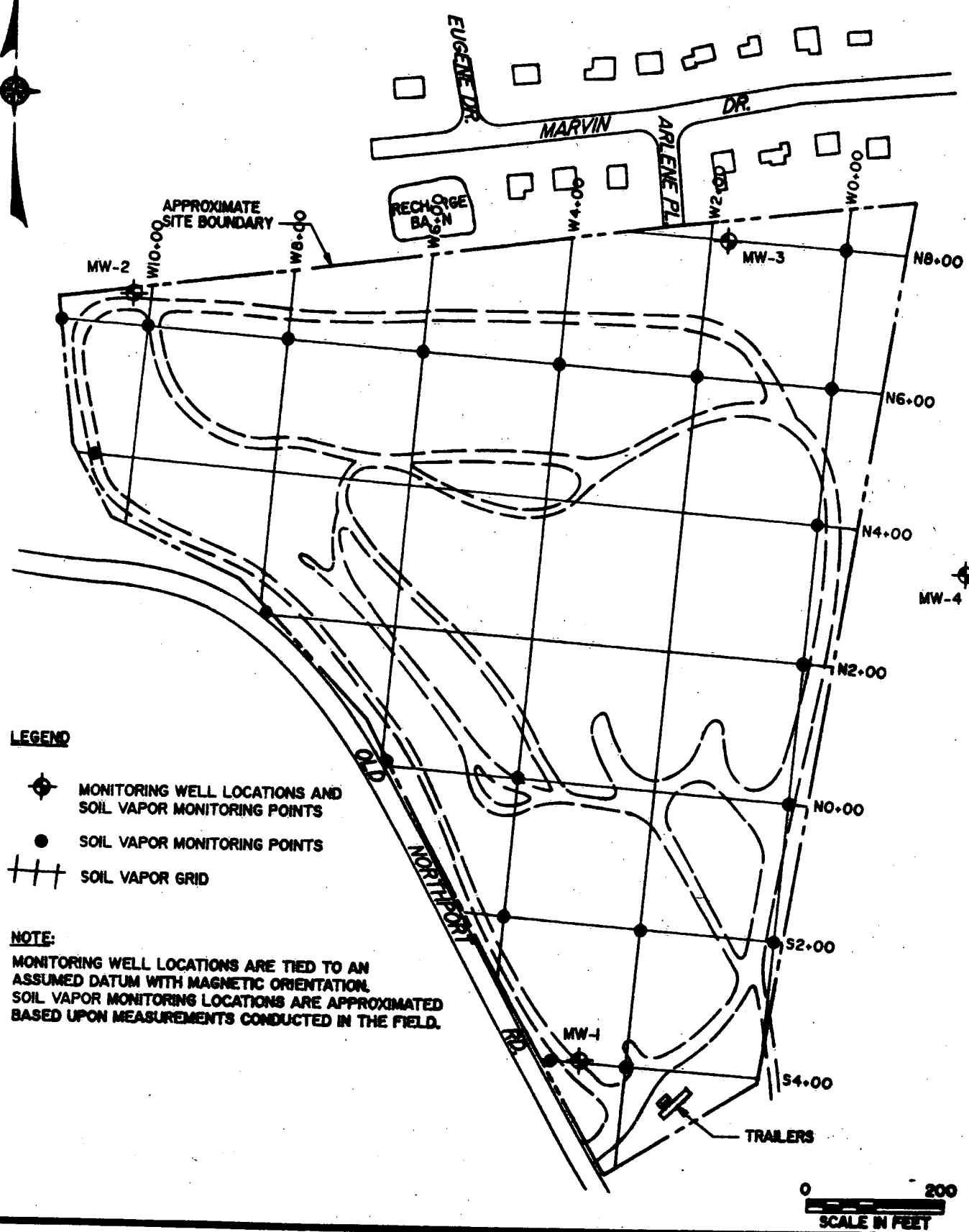
A soil vapor investigation encompassing 24 monitoring points was performed on-site for the purpose of identifying any potential sources of volatile organic compound contamination which would result in modification of the proposed monitoring well locations prior to their installation. A grid network was established over the entire site based on a 200-foot by 200-foot

grid spacing. Survey stakes were used to mark the nodes. The purpose of the grid was to provide a reference for the soil vapor investigation. The grid established for the soil vapor locations is shown on Figure 2-1.

At each soil vapor sampling location, a stainless steel probe with a removable inner rod was driven into the ground to a depth of 18 inches using a slide hammer. The inner rod prevents soil from entering the probe during the installation process. Upon reaching the completion depth, the inner rod was removed and vapor was allowed to collect within the probe for a minimum period of 5 minutes. A reading for total volatile organic vapors was collected using the Photovac Microtip portable photoionization detector, Century Foxboro OVA flame ionization detector and EXOTOX combustible gas indicator. The survey was performed under dry atmospheric conditions to prevent excessive moisture from interfering with the measurements. However, saturation of the ground following an earlier precipitation event inhibited collection of data with the Microtip photoionization detector. Appendix B contains the air monitoring forms from the soil vapor investigation.

2.3 Monitoring Well Program

Four groundwater monitoring wells were installed as part of this PSA to define the horizontal extent of groundwater contamination on-site, as well as groundwater flow direction. The northern groundwater flow direction anticipated prior to drilling was generally confirmed by groundwater elevation data collected on-site during the investigation, however, a groundwater divide was also identified on-site. In March 1994, during a subsequent site visit, MW-4 could not be located and was presumed to have been destroyed although no evidence of the well had been found (concrete pad, steel outer casing, PVC riser). Monitoring well locations are shown on Figure 2-1. The following sections contain the description of methods which were used for the installation, development and sampling of the groundwater monitoring wells.



LEGEND

- MONITORING WELL LOCATIONS AND SOIL VAPOR MONITORING POINTS
- SOIL VAPOR MONITORING POINTS
- SOIL VAPOR GRID

NOTE:

MONITORING WELL LOCATIONS ARE TIED TO AN ASSUMED DATUM WITH MAGNETIC ORIENTATION. SOIL VAPOR MONITORING LOCATIONS ARE APPROXIMATED BASED UPON MEASUREMENTS CONDUCTED IN THE FIELD.

STECK & PHILBIN CBD SITE
SMITHTOWN, NEW YORK

SAMPLING LOCATIONS

FIGURE 2 - 1

2.3.1 Borehole Drilling

All four monitoring well borings were drilled using a 4-1/4 inch ID hollow stem auger. When difficulties with elevated levels of explosive gases (methane) were encountered, potable water was introduced into the hollow stem augers to suppress the gas. When this proved unable to contain methane levels in boreholes MW-2 and MW-1, a suppressant foam (Poly-Foamer) was used to suppress the methane. At MW-1, 1/10 quart of Poly-Foamer was used to make a 5-gallon pail of foam which was added to the borehole at 20 feet below ground surface (bgs) and again at 50 feet bgs where elevated levels of explosive gas were encountered. With each addition of Poly-Foamer, a plug of foam 5 to 6 feet in length formed inside the base of the augers after the addition of more water. Foam was added to the MW-2 borehole at 35 feet bgs and extended about 5 to 6 feet up inside the base of the augers.

The final depth of each borehole was about 15 feet below the water table. Cuttings generated from the construction of the boreholes were monitored and due to the absence of readings on the Microtip and OVA, were disposed on-site in the vicinity of the boreholes. Refer to Appendix C for the boring logs.

2.3.2 Subsurface Soil Sampling

During drilling of the boreholes, split spoon samples were obtained at 5-foot intervals beginning at the 5 to 7 foot depth interval in MW-4 and continuing until the completion depth of the boring. At the MW-2 location split spoons were obtained at 5-foot intervals to a depth of 30 feet and at 10-foot intervals to the completion depth of the boring. At MW-1 and MW-3 the split spoon samples were collected at 10-foot intervals beginning at the 10 to 12 foot depth and continuing until the completion depth of the boring. The change from the initial sampling interval of 5 feet specified in the work plan was implemented at the direction of the NYSDEC project manager due to an absence of significant stratigraphic changes. These samples provided stratigraphic information on the site.

Soil samples obtained from the split spoons were examined for geologic characteristics and staining, and screened with a Century OVA and a Photovac Microtip upon retrieval from the borehole. Based on readings greater than 50 ppm on the OVA, one soil sample (MW-2, 5 to 7 feet) was collected and analyzed for full Target Compound List (TCL +30) parameters as defined in the work plan.

Following volatile organic vapor screening, the samples were logged by a geologist and observations recorded on a boring log form (Appendix C).

One subsurface soil sample from the screened interval was collected from each overburden well and analyzed for grain size including sieve and hydrometer analysis in accordance with ASTM D422-63. The grain size analyses are presented in Appendix D.

2.3.3 Monitoring Well Construction

Upon completion of each borehole, Morie Number 1 grade sand was placed inside the hollow stem auger casing to form a bed at the desired depth of well installation. Following the placement of the sand at the base of the borehole, the well screen and riser pipe were assembled and lowered into the casing so that riser pipe remained above ground surface. A clean Morie Number 1 grade quartz sand pack was then placed into the annular space around the well to a depth of approximately (but not less than) two feet above the top of the well screen. During the placement of the sand pack, the augers were slowly removed.

After placement of the sand pack, a two foot thick seal of Pure Gold bentonite pellets was installed in the annular space around the well and hydrated manually with potable water. The remaining annular space above the bentonite pellet seal was grouted with Pure Gold bentonite grout to within 3 feet of the ground surface. The bentonite grout was pressure pumped into the annular space by the tremie method.

The four water table monitoring wells were constructed of 2-inch diameter, Schedule 40 PVC, flush-joint riser pipe and 0.010-inch slot well screen 20 feet in length. The wells were constructed with approximately 15 feet of screen below the water table.

For each of the wells, a five-foot long steel protective casing with locking cover was set approximately 2.5 feet into the concrete surface seal. A concrete pad was placed around the base of the protective casing. Table 2-1 presents a summary of the monitoring well specifications. Specific well construction details are presented on monitoring well construction logs contained in Appendix C.

2.3.4 Borehole and Monitoring Well Logging

All borehole construction and monitoring well installations were logged and documented by a geologist. Notes were kept in both bound field books and on boring logs and well construction diagrams. The Modified Burmeister Classification System was used to describe soil samples recovered from the borings.

2.3.5 Monitoring Well Development

Well development of MW-1 consisted of surging the well and removal of water using a GRUNDFOS Rediflow-2 submersible pump with dedicated disposable 1/2-inch diameter polyethylene tubing. During the development process the pump was periodically lowered and raised throughout the water column (to surge) and the flow rate on the pump altered between 0 and 1.7 gallons per minute to develop the entire saturated portion of the screened interval. The well was developed until the turbidity of the discharge water was less than 50 nephelometric turbidity units (NTUs). The three remaining wells were developed by hand with a heavy duty polyethylene bailer. Heavy silt conditions in these wells caused the GRUNDFOS Rediflow-2 pump to continually seize up. Therefore the bailer was used both to surge the well screens and remove water from the wells. Development in these wells was considered complete after removal of approximately 10 well volumes of water and progressive improvement in sample turbidity was

Table 2-1

**STECK AND PHILBIN DEVELOPMENT CO. SITE
PRELIMINARY SITE ASSESSMENT
BORING AND MONITORING WELL SPECIFICATIONS**

<u>Well/Boring Number</u>	<u>Depth to Bottom of Borehole (feet)</u>	<u>Depth to Top of Screen (feet)</u>	<u>Depth to Bottom of Well (feet)</u>	<u>Screen Length (feet)</u>	<u>Geologic Unit Screened</u>
MW-1	86.4	66.4	86.4	20	Sand/Gravel
MW-2	125.0	104.8	124.8	20	Fine sand/ Some Silt
MW-3	133.9	113.9	133.9	20	Fine sand/ Some Silt
MW-4	75.4	55.4	75.4	20	Medium Sand

Note:

All depths are presented in feet below ground surface (except screen length).

noted. The final turbidities recorded after development were 40 NTUs at MW-1 and greater than 100 NTUs at MW-2, MW-3 and MW-4. During the development process, the volume of water removed, and periodic measurements of pH, conductivity and turbidity, were recorded for each well. Development water was discharged directly to the ground surface at a distance greater than 20 feet from the wells.

2.3.6 Groundwater Level Measurement

Groundwater level measurements were obtained from each of the wells installed as part of this investigation. Since measurements were concurrent with the groundwater sampling event, the water levels were obtained prior to well evacuation and sample collection (dates collected were October 6 and 7, 1993). Groundwater elevation measurements were also collected on March 11, 1994 in an effort to confirm the earlier measurements and to attempt to determine whether a pumping well in proximity of the site may be affecting groundwater elevations in the area. Monitoring Well MW-4 had apparently been destroyed prior to this date and no evidence of it was found on March 11, 1994. The static water levels were measured from the top of the PVC riser in each well and with an accuracy to the nearest 0.01 foot. Groundwater level data was used to construct groundwater table contour maps to determine local horizontal flow direction. Elevations of groundwater were calculated after the measuring points were surveyed with respect to an assumed datum on-site.

2.3.7 Groundwater Sampling

Groundwater samples were collected from each of the four groundwater monitoring wells installed as part of the PSA investigation. A blind duplicate sample was collected from well MW-3 and labeled MW-5 for the purpose of a laboratory quality control check in lieu of the analysis of matrix spikes and duplicates. The samples were analyzed for TCL +30 parameters.

The groundwater samples were collected from the monitoring wells by first measuring the static water level and determining the well volume. Purging was conducted by using a dedicated disposable, polyethylene bailer and dedicated polyethylene rope. The purge water was monitored

for pH, conductivity and turbidity. Purging was continued until three to five well volumes of water were removed. Turbidity values at all of the wells were greater than 100 NTUs and two sets of unfiltered samples for metals analyses (one preserved, one unpreserved) were submitted to the laboratory. The preserved samples were analyzed for total metals and the results reviewed by our firm and the NYSDEC project manager. Based upon the detection of low metals concentrations, the unpreserved samples were not filtered or analyzed. Locations of the monitoring wells are shown on Figure 2-1.

2.3.8 Drill Water Sampling/Borehole Additive Sampling

One sample of drill water was collected from the tank of the driller's rig and analyzed for TCL +10 volatile organic compounds. The source of the potable water used during drilling was a fire hydrant located on the north side of Old Northport Road near the intersection with Indian Head Road.

Additionally, due to the presence of explosive gas at the MW-1 and MW-2 boreholes it became necessary to introduce a drilling product called POLY-FOAMER to suppress the explosive gas and facilitate completion of borehole drilling. A sample of the additive was analyzed for TCL +10 volatile organic compounds.

2.4 Air Monitoring and Radiation Survey

As part of this PSA, air monitoring was implemented for the protection of workers. Either a flame ionization detector (Century Foxboro OVA) or a photoionization detector (Photovac MicroTip) was used to detect total organic vapors. An EXOTOX combustible gas indicator was utilized during the soil vapor investigation and borehole drilling to detect combustible gas. A Geiger counter was used to assess background levels of radiation. A digital respirable dust indicator (Miniram) was used throughout the field investigation to detect the levels of dust particulates in the air. The detailed monitoring procedures are provided in the work plan QA/QC Plan.

These instruments were used to determine necessary levels of personnel protective equipment, as well as to provide data on contaminant concentrations in the background ambient air and during investigative activities.

Ambient air monitoring was used to screen the site for any "hot spots" of volatile organic compounds and elevated radioactivity. This survey was performed during the geophysical survey. The survey was performed by continuously monitoring while walking the site perimeter and across the site.

2.5 Surveying and Mapping

Location maps were prepared by a New York State licensed surveyor for use in preparation of this report. Northing and easting coordinates and elevations were obtained for each monitoring well and tied to an assumed coordinate system and datum on the site. Survey points are listed in Appendix E of this report.

2.6 Health and Safety Program

As part of the project work plan, a Health and Safety Plan was prepared in order to establish occupational health and safety requirements, responsibilities, and procedures to protect workers during the field investigation at the Steck and Philbin Development Co. site. The requirements for worker health and safety were based on the following:

- The Standard Operating Safety Guides, US Environmental Protection Agency (EPA), Office of Emergency and Remedial Response;
- The Occupational Health and Safety Administration (OSHA) Regulations, 29 CFR Parts 1910.120 and 1926;
- Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, NIOSH, OSHA, USCG and EPA;
- Health and Safety Procedures for Hazardous Waste Sites, Dvirka and Bartilucci Consulting Engineers; and

- Superfund Amendments and Reauthorization Act (SARA), Title I, Section 126.

All activities associated with this PSA were performed in accordance with this Health and Safety Plan. All work conducted on-site for this investigation was done in Level D protection.

2.7 Quality Assurance/Quality Control and Sampling Program

As part of the preliminary site assessment and generic work plan, a Quality Assurance and Quality Control (QA/QC) Plan was prepared which developed and described the detailed sample collection and analytical procedures to be used to ensure high quality, valid data collected as part of this project. This QA/QC Plan included detailed descriptions of the following:

- Objective and Scope
- Data Usage
- Monitoring Network Design and Rationale
- Monitoring Parameters
- Schedule of Tasks and Outputs
- Project Organization and Responsibility
- Data Quality Requirements and Objectives
- Sampling Procedures
- Decontamination Procedures
- Laboratory Sample Custody Procedures
- Field Management Documentation
- Calibration Procedures and Preventive Maintenance
- Documentation, Data Reduction and Reporting
- Data Validation
- Performance and System Audits

- Corrective Action
- Method Blanks
- Field Management Forms
- NYSDEC Sample Identification, Preparation and Analysis Summary Forms
- Data Validation Reporting Forms

All work undertaken during the preliminary site assessment was performed in accordance with the procedures outlines in the QA/QC Plan contained in the work plan for this site.

2.8 Data Validation

Throughout the preliminary site assessment, all aspects of the data validation process were followed in accordance with the procedures outlined in the QA/QC Plan included in the project work plan. Nytest Environmental, Inc., a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) laboratory, meeting requirements for 1991 Analytical Services Protocols (ASPs), performed all the chemical analyses for the samples obtained during the PSA. Summary and documentation regarding data validation was completed by the laboratory using appropriate NYSDEC forms and submitted with the data package as required in the work plan.

Data validation was performed to determine and document analytical data quality in accordance with NYSDEC ASP requirements. The analytical and validation processes were conducted in conformance with the 1991 ASP and are based on the United States Environmental protection Agency's (USEPA) Contract Laboratory Protocol "Statement of Work" documents and the associated "CLP Functional Guidelines for Data Validation" documents.

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

3.1 Surface Features

The Steck and Philbin Development Company site is located on the Harbor Hill moraine which extends from Long Island Sound southward to the Long Island Expressway and beneath the site. The Harbor Hill moraine is an east/west trending elongated glacial landform elevated above an outwash plain located to the south. Natural elevations of the land surface in the area of the site are about 150 feet above mean sea level (msl).

The site is approximately 21 acres in size and lies in an area which has been mined extensively for sand and gravel.

An unknown quantity of C&D fill is present at the site. The majority of the C&D fill area is covered with exposed pieces of wood, trees and cement blocks. The slopes off the sides of the fill are steep on all sides to the surrounding terrain except to the north where the former sand and gravel pit has been filled in to the original elevation resulting in the C&D material abutting the residential area at a similar elevation.

3.2 Geophysical Investigation

The magnetic survey at the Steck and Philbin Development Company site indicates that monitoring well locations MW-3 and MW-4 are in areas of relatively undisturbed total magnetic field and low vertical magnetic gradient. Monitoring well locations MW-1 and MW-2 are in areas affected by their proximity to chain link fencing, and as such the presence or absence of buried ferrous objects could not be determined from the survey. Restrictions due to site use and the predicted groundwater flow direction prevented relocation of the original proposed monitoring well locations to areas where the magnetic survey could be utilized. Drilling proceeded with caution at the MW-1 and MW-2 locations. The geophysical investigation report is located in Appendix A.

3.3 Site Geology

The Steck and Philbin Development Company site is located on the Harbor Hill moraine deposited by a Wisconsin Ice Sheet on Long Island. The Upper Pleistocene deposits, of which the Harbor Hill moraine is a part, extend approximately 350 feet below ground surface in the area of the site. The Smithtown clay has been identified locally. Across Old Northport Road at the Smithtown Sanitary Landfill, the top of the clay was encountered at about 55 to 75 feet above mean sea level (msl). This unit, where present, may impede the vertical movement of groundwater or contaminants. The unit is clayey and silty and may not exist beneath the site. Underlying the Upper Pleistocene deposits in the area of the site is the Matawan Group - Magothy Formation Undifferentiated, the Raritan clay, the Lloyd aquifer and bedrock, in descending order.

The Upper Pleistocene deposits on the moraine consist of sands and gravels, till and clay representative of the wide variety of glacial and end-glacial environments documented as previously existing in the area.

Samples collected during the drilling program indicate tan, white and orange fine to medium sands with little to no gravel and trace to no silt in MW-1 and MW-4 locations and to a depth of approximately 100 feet below ground surface (bgs) at MW-2 and MW-3 locations. Orange-tan fine to medium sands with some silt and trace to little gravel were found in the lowest 30 feet at both the MW-2 and MW-3 locations.

Fill was found at MW-1 to a depth of about 5 feet bgs. It consisted of gray to black sand and gravel and miscellaneous debris such as wood, plastic and metal.

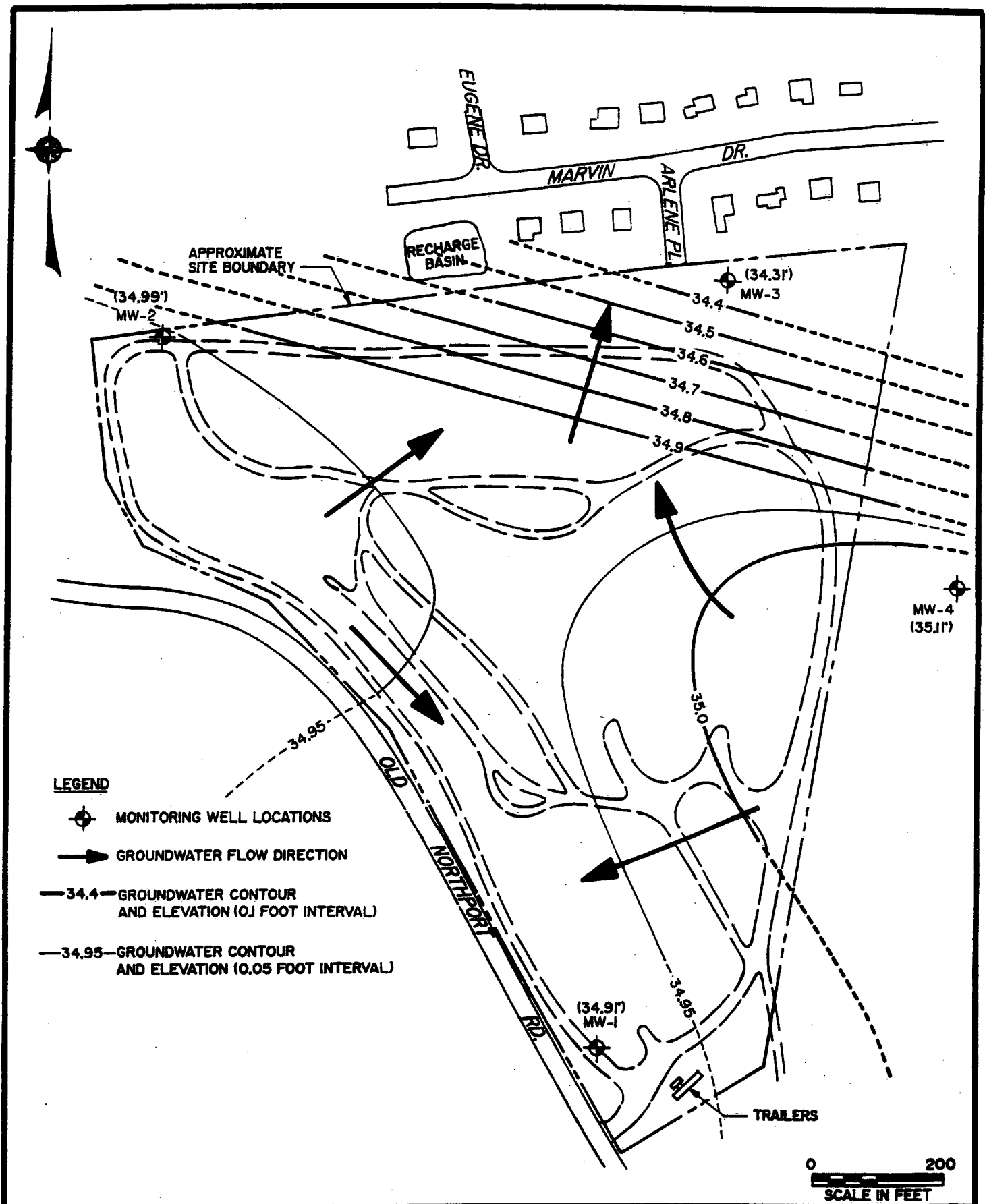
Grain size analyses obtained from the screened intervals of the on-site wells indicate predominantly fine to medium sands, trace gravel at wells MW-2, MW-3 and MW-4, some gravel at MW-1 and generally trace silt and clay. The sample from monitoring well MW-4 exhibited about 20 percent silt and 10 percent clay. The grain size analyses are presented in Appendix D.

3.4 Hydrogeology

Groundwater in the area of the Steck and Philbin Development Company site occurs in three aquifers in descending order: the Upper Glacial aquifer, the Magothy aquifer and the Lloyd aquifer. Regional groundwater flow is influenced by the Atlantic Ocean, Long Island Sound and the topography of the island itself. A groundwater divide runs east-west through the center of the island. Groundwater recharging north of the divide flows northward discharging into Long Island Sound. Groundwater recharging to the south flows towards and discharges into the Atlantic Ocean. According to the 1992 map of the contoured water table surface prepared by the Suffolk County Department of Health Services (SCDHS) the Steck and Philbin Development Company site lies to the north of the divide and groundwater flow is northeasterly (see Appendix G).

The uppermost aquifer beneath the site is the Upper Glacial aquifer. Since the thickness of its corresponding geologic unit, the Upper Pleistocene Deposits, in the area of the site have been estimated to be approximately 350 feet thick, depths to groundwater about 65 to 110 feet below ground surface (bgs) measured at the landfill indicate that the saturated thickness of this sole source aquifer may exceed 250 feet on-site.

Groundwater elevation measurements obtained from the four water table wells installed on-site indicate groundwater flow is to the north-northeast. Locally, a groundwater flow direction to the northeast has been mapped just south of the site at the Smithtown Landfill. MW-1 exhibited an abnormally low groundwater elevation characteristic of lying within the radius of influence of a nearby upgradient pumping well. A groundwater contour map developed for groundwater elevation measurements collected on October 6 and 7, 1993 is presented on Figure 3-1. A groundwater divide has been interpreted as existing on-site from the available groundwater elevation data and limited number of on-site measurement points. The interpretation of the water table surface on the southern portion of the site is strongly driven by the groundwater elevation at MW-1 and the relative absence of an appreciable horizontal hydraulic



STECK & PHILBIN C&D SITE
SMITHTOWN, NEW YORK

WATER TABLE CONTOUR MAP

FIGURE 3 - 1

gradient south of monitoring wells MW-2 and MW-4. A similar relationship of elevations among the wells MW-1, MW-2 and MW-3 was observed for groundwater elevation measurements obtained on March 11, 1994 with the exception of MW-4, which is no longer in existence and therefore unmeasurable. Water level measurements and surveyed well elevations (assumed datum) are provided on Table 3-1.

In order to identify the presence of pumping well(s) upgradient of MW-1 and to confirm that the southern portion of the Steck and Philbin Development Company site may be within their radius of influence, D&B conducted a review of information from files derived from a previous work plan prepared by Henderson and Bodwell, C.E. for Steck-Philbin Development Co. (dated March 15, 1985) and the incomplete PSA prepared by TAMS Consultants, Inc. under subcontract to Dunn Geoscience Engineering Company, P.C. dated January 1991. Additionally, a visit was made to the NYSDEC - Region 1 office to establish the utilization of wells identified in the other reports.

The review indicates that four wells exist immediately south of the site and Old Northport Road. Their approximate location is shown on a map presented in Appendix G. The information available in the NYSDEC files is limited to well completion reports submitted at the time of drilling and permit applications and conditions for use issued by the NYSDEC. Updated information on current well usage is not available from the files because annual reports have not been filed by the owners. Public water is available along Old Northport Road, however, one or more of the commercial/industrial enterprises which exist in the area may continue to use their on-site well in addition to the public supply. The following information regarding the local area wells was obtained through telephone contact with the NYSDEC Region 1 and data obtained during a visit to their water unit to review the available data. All data obtained are included in Appendix G.

Table 3-1

**STECK AND PHILBIN DEVELOPMENT COMPANY SITE
PRELIMINARY SITE ASSESSMENT
GROUNDWATER ELEVATION MEASUREMENTS**

<u>Well</u>	<u>Ground Elevation (feet*)</u>	<u>PVC Riser Elevation (feet*)</u>	<u>DTW From Riser (feet)</u>	<u>Ground- water Elevation (feet*)</u>	<u>DTW Below Ground (feet)</u>	<u>Geologic Unit Screened</u>
MW-1**	101.71	104.10	69.19	34.91	66.8	Sand/Gravel
MW-2**	139.80	141.99	107.00	34.99	104.81	Fine Sand/ Some Silt
MW-3**	151.43	153.52	119.21	34.31	117.12	Fine Sand/ Some Silt
MW-4**	96.32	98.92	63.81	35.11	61.21	Medium Sand
<hr/>						
MW-1+	101.71	104.10	68.45	35.63	66.08	Sand/Gravel
MW-2+	139.80	141.99	106.25	35.74	104.06	Fine Sand/ Some Silt
MW-3+	151.43	153.52	118.73	34.79	116.64	Fine Sand/ Some Silt

*Elevations are tied to an assumed datum on-site.

** Elevation from MW-1 collected on October 6, 1993; Elevations from MW-2, MW-3 and MW-4 collected on October 7, 1993.

+ Elevations collected on March 11, 1994. MW-4 was not found and appears to have been destroyed.

DTW - Depth to water

<u>Well ID*</u>	<u>Well ID</u>	<u>Permit Number</u>	<u>Suffolk County Owner</u>	<u>Depth (feet)</u>	<u>Usage</u>	<u>Capacity (gpm)</u>	<u>Pump (gpm)</u>
24	S-18706	---	Frank Ambroso Amfar Asphalt	146	Unk.	Unk.	3/4 Hp pump
25	S-31938	Unk.	Gormby	Unk.	Unk.	Unk.	Unk.
26	S-10902	1282	Izzo	438	Permitted for Gravel Washing	150	15
27	S-26423	2266	Indian Head Sand and Gravel	150'8"	Permitted for Gravel Washing	200	30
28	S-22398	2266	Indian Head Sand and Gravel	107'	Permitted for Sanitary Purposes/ Gravel Washing	100	10

Unk. - Unknown

*Corresponds to map in Appendix G.

While this information does not conclusively identify any currently pumping wells in the area, it does establish these wells as potential withdrawal points and a potential source for the depressed water table found at the MW-1 location. Factors such as duration of pumping, pumping rate and penetration of the aquifer by the pumping well may affect the groundwater flow direction, average groundwater velocity and subsequently migration rates and flow path of any potential groundwater contamination on the Steck and Philbin Development Company site.

A horizontal hydraulic gradient has been calculated for the site both within the area of potential radius of influence and further downgradient of it based upon the water table contour map.

The horizontal hydraulic gradient is 0.00016 feet of drawdown per horizontal foot of distance just downgradient of the groundwater divide and 0.002 feet of drawdown per horizontal foot of distance north of wells MW-2 and MW-4. Vertical hydraulic gradients were not evaluated as part of this project although they may be significant in this area of the island due to the position of the site within the glacial moraine, proximity to the groundwater divide and potential for deep flow recharge in this area.

4.0 NATURE AND EXTENT OF CONTAMINATION

The purpose of this section is to provide a discussion of the results of the field activities and sampling, and the nature, extent and significance of contamination found during the Steck and Philbin Development Company site Preliminary Site Assessment. Samples were collected at the site for analyses of subsurface soil and groundwater. In addition, a soil vapor survey and radiation survey were conducted. The results of each sampling matrix, including soil vapor, are discussed below. Data validation for all sampling results is included in Appendix F.

4.1 Soil Vapor Survey

As discussed previously, the soil vapor investigation was primarily conducted along the perimeter of the facility site, although many points sampled were within the fill material itself. The survey consisted of 24 monitoring points. The results of the investigation are presented on Table 4-1 and the monitoring points are presented on Figure 2-1. The results indicate that significant concentrations of methane gas were likely detected (as measured with the OVA) and sporadically distributed on-site. Concentrations of volatile organic compounds in excess of 1,000 ppm were detected at five monitoring locations.

Concentrations of volatile organic compounds detected with the OVA, Microtip and EXOTOX during this soil vapor survey are generally not relatable to one another. The OVA monitors volatile organic compounds, including methane; the Microtip monitors volatile organic compounds except methane; and the EXOTOX monitors combustible gases. At a C&D landfill, methane (as measured with the OVA) is expected to be the predominant component of soil vapor. The results indicate that this is also the case at the Steck and Philbin Development Company site. However, of the five locations where concentrations of volatile organic compounds in excess of 1,000 ppm were obtained with the OVA, confirmatory readings obtained at three locations with the EXOTOX indicate that methane was found at only one location (S4+00, W2+00). At the other two locations (N0+00, W6+00 and N6+00, W10+00) methane was not detected with the EXOTOX (minimum detection capability of 1 percent of the lower explosive limit (LEL) or 500 ppm) which potentially indicates the presence of other volatile organic compounds. However, the Microtip readings were 0.0 and 2.9 ppm, respectively, which indicate a relative absence of these suspected compounds.

Table 4-1

**STECK AND PHILBIN DEVELOPMENT COMPANY SITE
PRELIMINARY SITE ASSESSMENT
SOIL VAPOR INVESTIGATION RESULTS**

<u>Location</u>	<u>OVA (ppm)</u>	<u>Microtip (ppm)</u>	<u>EXOTOX (Percent LEL)</u>
S2+00, W0+00	>1,000	0.0	-
N0+00, W0+00	>1,000	0.0	-
N2+00, W0+00	600	0.0	-
N4+00, W0+00	-	1.5	5
N6+00, W0+00	-	0.0	1
N8+00, W0+00	-	10.0	0
S4+00, W2+00	>1,000	0.0	>100
S2+00, W2+00	300	0.0	0
N6+00, W2+00	30	14.0	0
S4+00, W3+00	1	0.0	0
S2+00, W4+00	0	1.0	0
N0+00, W4+00	25	0.0	0
N6+00, W4+00	40	16.0	0
N0+00, W6+00	>1,000	0.0	0
N6+00, W6+00	0	5.0	0
N2+00, W8+00	100	0.0	0
N6+00, W8+00	0	6.8	0
N6+00, W10+00	>1,000	2.9	0
N4+00, W10+50	200	0.0	0
N6+00, W11+50	500	7.1	0
MW-1	-	4.5	1
MW-2	-	0.0	1
MW-3	-	1.5	0
MW-4	-	0.0	0

Note:

- No reading recorded, instrument was not utilized.
- > Greater than.

Field conditions during the survey included wet and soggy on-site soils and extreme heat which may have compromised the accuracy of the Microtip photoionization detector since it is sensitive to moisture.

The values obtained with the EXOTOX at the following locations are suspect because they do not correspond with what was expected on-site; N0+00, W6+00 and N6+00, W10+00. In the event that methane is the predominant soil vapor (as it appeared to be at these locations), a concentration of 500 ppm on the OVA would correspond to a measurement of 1 percent LEL on the EXOTOX. Under ideal conditions, concentrations of methane above 500 ppm observed with the OVA should be detected with the EXOTOX.

The results of the investigation were inconclusive due to wet site conditions, high temperatures and high humidity.

4.2 Subsurface Soils

Due to elevated organic compound vapor readings of 10 ppm obtained with the Microtip and 800 ppm obtained with the OVA from the MW-2 (5-7") split spoon sample during drilling, this subsurface soil sample was selected for chemical analysis. The sample was analyzed for TCL +30 parameters. The analyses are presented at the end of this section and summarized below.

A low level of toluene, a targeted volatile organic compound (VOC), of 3 ug/kg was detected in the sample below the detection limit. The total estimated concentration of non-targeted and tentatively identified compounds (TICs) is 198 ug/kg. Methylene chloride and acetone that were detected in the sample were also detected in the laboratory blank and were qualified as nondetected based upon data validation.

Several semivolatile organic compounds (SVOCs) were detected in the sample. Slightly elevated concentrations of total polycyclic aromatic hydrocarbons (PAHs) of 1,186 ug/kg were detected. Bis(2-ethylhexyl)phthalate was detected at a concentration which exceeded the calibration range of the instrument. Upon reanalysis at a dilution factor of 20, it was found at a concentration of 24,000 ug/kg. Although this result was qualified as being detected in the blank, the level detected in the sample as more than 5 times the amount found in the blank. The source of this elevated level is unknown. However, although fill material was not observed in this sample, a piece of plastic, a common source of phthalates and an acceptable C&D waste material, may have been present in the sample. Nontargeted tentatively identified compounds were found at an estimated total concentration of 1,780 ug/kg.

The pesticide 4,4'-DDD was detected at a concentration of 9.3 ug/kg in the sample. 4'-DDE and gamma-chlordane were found below their detection limits. Alpha-chlordane (pesticide) and Aroclor-1248 polychlorinated biphenyl (PCB) were also found in the sample at concentrations below their detection limits. Since the concentration difference between the two gas chromatograph columns during analysis of these two compounds was greater than 25 percent, the lower values are presented. Endrin aldehyde was detected in the sample as well as the laboratory blank and has been qualified as nondetected based upon data validation.

Several inorganic constituents were detected in elevated concentrations in the sample. Copper, lead and zinc were detected at levels greater than "Eastern USA Background" as reported in the NYSDEC TAGM 4046 dated November 1992. Copper was detected at 89.4 mg/kg and the reported background level is 50 mg/kg; lead was detected at 85.4 mg/kg and the background level is 61 mg/kg; and zinc was detected at 139 mg/kg and the reported background level is 50 mg/kg. Although these levels were detected above reported background levels, they are not detected at elevated levels in the groundwater and are not significantly elevated.

4.3 Groundwater

Four groundwater monitoring wells were sampled at the site. A blind duplicate sample was collected at MW-3 and the results reported as MW-5. The analyses have been compared to the NYSDEC Class GA Groundwater standards/guidelines. The analyses are described below and are contained on Table 4-2 at the end of this section. Monitoring well MW-3 has been identified potentially as the only groundwater monitoring point on-site which is directly downgradient of the filled area.

The VOC analysis shows benzene and toluene in downgradient on-site groundwater in low level concentrations above their standards. Benzene was detected at MW-3 at an estimated concentration of 2 ug/l which is below the detection limit but above the groundwater standard 0.7 ug/l. Benzene was not detected in the duplicate sample (MW-5). Toluene was detected at MW-3 at a concentration of 13 ug/l and confirmed in the duplicate sample (MW-5) at a concentration of 9 ug/l (standard 5 ug/l). Other targeted compounds detected in on-site groundwater below their standards/guidelines include: acetone, 1,1-dichloroethene, 1,2-dichloroethane, toluene and chlorobenzene. Somewhat elevated concentrations of nontargeted tentatively identified compounds were detected in the on-site groundwater. Methylene chloride and trichloroethene detected by the laboratory are presented as nondetected based upon the results of the data validation.

Although benzene and toluene were detected above the standards/guidelines in MW-3, duplicate analysis indicated a lower level of toluene and benzene was not detected. The low levels of VOCs detected do not appear to be the result of a significant groundwater contamination as a result of disposal activities at the site.

Analyses of SVOCs identified no compounds above the standards in on-site groundwater. Bis(2-ethylhexyl)phthalate was found below the detection limit in all of the groundwater samples. 2-Methylnaphthalene was tentatively identified in the MW-2 sample based upon data validation. Dimethylphthalate was detected at MW-3 and in the blind duplicate (MW-5) at concentrations of 20 ug/l and 15 ug/l, respectively. Acenaphthene was detected in MW-5 below the detection

limit and anthracene was detected in MW-3 and the duplicate (MW-5) below the detection limit. Nontargeted tentatively identified compounds were identified in all wells on-site: MW-1 total TICs: 15 ug/l; MW-2 total TICs: 276 ug/l; MW-3 total TICs: 307 ug/l (duplicate 241 ug/l); and MW-4 total TICs: 29 ug/l. No pesticides or PCBs were detected in on-site groundwater.

A review of the analytical results for inorganic constituents has revealed a probable switch in sample identification between MW-3 and MW-4 results. Sample MW-5 is the blind duplicate sample collected from MW-3. The VOC, SVOC and cyanide results show reasonable correlation between MW-3 and the blind duplicate labeled MW-5 (collected in a separate bottle). With regard to the metals however, the samples labeled MW-4 and MW-5 show a stronger correlation both in detected constituents and their concentrations than the samples labeled MW-3 and MW-5.

During sampling, two preserved plastic pints were filled with groundwater removed from MW-3 (one was labeled MW-5) and one preserved plastic pint was filled with groundwater collected from MW-4. Since two bottles were filled with sample from MW-3 and two analytical results overall appear very similar, the sample labeled MW-5 probably represents the results of analysis of one of the two bottles collected from MW-3 and the results labeled MW-3 and MW-4 may possibly have been switched. The results from MW-5 are considered representative of conditions at MW-3. The source of the sample results labeled MW-4 cannot be confirmed. Cyanide samples were collected in a separate bottle and the results for MW-3 and MW-4 are considered representative of these locations.

Several inorganic constituents were detected above groundwater standards in on-site groundwater. They include: iron, manganese and sodium in all on-site wells. Additionally, antimony and chromium were detected at concentrations above their guideline and standard respectively at upgradient location MW-1. Chromium and magnesium have been detected above groundwater standards at the MW-3 location as represented by the results from the blind duplicate labeled MW-5. Lead was detected slightly above its groundwater standard at MW-2.

Turbidity values for all groundwater samples collected on-site were greater than 100 NTUs and two sets of unfiltered samples for metals analyses (one preserved, one unpreserved) were submitted to the laboratory. The preserved samples were analyzed for total metals. As stated previously, based upon the detection of low metals concentrations, the filtered samples were not run. Elevated concentrations (but below standards and guidelines) of aluminum, barium, calcium, cobalt, potassium, vanadium and zinc may be an indication of the sample turbidities.

The elevated concentrations of iron, magnesium, manganese and sodium may reflect the presence of the additional particulate matter suspended in the groundwater withdrawn from the on-site wells.

In addition, the following natural factors may be influencing groundwater quality on-site. Iron and manganese concentrations of shallow groundwater on Long Island often exceed Class GA groundwater standards due to their presence in high concentrations in the geologic formations. Cobalt detections in the on-site groundwater may be related to the presence of iron. Cobalt, like iron, can exist in 2+ or 3+ oxidation states and coprecipitation or adsorption of cobalt by oxides of manganese and iron appears to be a controlling factor in the concentrations which can occur in natural water.

Results of the groundwater analysis indicate that there is no significant groundwater contamination at the site as a result of disposal activities.

4.4 Borehole Additive

As described previously, a drilling additive was used during borehole drilling at the MW-1 and MW-2 locations to suppress high concentrations of explosive gas encountered in the vadose zone. The product utilized is POLY-FOAMER manufactured by Economy Mud Products Co. of Houston, Texas. It is a biodegradable foam with the following reported ultimate decomposition products: carbon dioxide, ammonium sulfate and water. The product information is included in Appendix G.

A sample of the foam was collected from the bucket prior to being added in MW-2 and analyzed for TCL +10 volatile organic compounds. The results are presented on a table at the end of this section and discussed below.

Acetone was detected in the sample at a concentration of 29 ug/l and there was a total of 141 ug/l of nontargeted tentatively identified compounds.

Review of the groundwater results from monitoring wells MW-1 and MW-2 do not indicate the influence of the foam in any of the samples.

4.5 Drill Water

One sample of water used during drilling was collected from the water truck and analyzed for TCL +10 volatile organic compounds. The results are presented on the tables at the end of this section.

No targeted VOCs were detected in the sample. A total estimated concentration of 25 ug/l of nontargeted tentatively identified compounds was detected in the sample.

4.6 Air Monitoring and Radiation Survey Results

Air monitoring was conducted throughout drilling and the soil vapor survey for total VOCs, and explosive gas concentrations (percent LEL). The results of the soil vapor survey were presented earlier in this section.

During drilling at the MW-1 location, concentrations of total VOCs detected at the borehole with the Microtip ranged from 0 to 5 ppm and with the OVA ranged from 8 to greater than 1000 ppm. Borehole concentrations of methane measured as percent LEL ranged from 5 to 98 percent. As a result of detection of high concentrations of methane gas, a borehole additive was used to suppress the methane and ensure worker safety. Screening of split spoon samples

collected at this location resulted in detection of total VOCs with the Microtip ranging from 0 to 3 ppm and with the OVA ranging from 20 to greater than 1000 ppm. Percent LEL of split spoon samples ranged from 0 to 5 percent.

Similar conditions occurred during drilling at the MW-2 location. Total VOCs measured at the borehole ranged from 0 ppm to 9 ppm (Microtip) and 0 to greater than 1,000 ppm (OVA). Concentrations of explosive gas (methane) ranged from 0 to 50 percent LEL. One split spoon sample (5-7') was collected and sent to the laboratory for analysis based on the air monitoring screening results for total volatile organic compounds (10 ppm - Microtip and 800 ppm - OVA). Readings among the remaining samples ranged from 0 to 11.4 ppm (Microtip) and 0 to 600 ppm (OVA). Concentrations of methane among the split spoon samples ranged from 0 to 5 percent LEL.

Elevated concentrations of total organic vapors were not detected during borehole drilling at the MW-3 and MW-4 locations.

During the radiation survey no readings above background were detected on-site.

TABLE 4-2
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
SUBSURFACE SOIL SAMPLING RESULTS
VOLATILE ORGANICS

SAMPLE ID	SP-MW-2
SAMPLE DEPTH	(5'-7')
DATE SAMPLED	09/22/93
DILUTION FACTOR	[1]
UNITS	(ug/kg)
<u>PARAMETER</u>	
Chloromethane	U
Bromomethane	U
Vinyl Chloride	U
Chloroethane	U
Methylene Chloride	U*
Acetone	U*
Carbon Disulfide	U
1,1-Dichloroethene	U
1,1-Dichloroethane	U
1,2-Dichloroethene (Total)	U
Chloroform	U
1,2-Dichloroethane	U
2-Butanone	U
1,1,1-Trichloroethane	U
Carbon Tetrachloride	U
Bromodichloromethane	U
1,2-Dichloropropane	U
cis-1,3-Dichloropropene	U
Trichloroethene	U
Dibromochloromethane	U
1,1,2-Trichloroethane	U
Benzene	U
trans-1,3-Dichloropropene	U
Bromoform	U
4-Methyl-2-Pentanone	U
2-Hexanone	U
Tetrachloroethene	U
1,1,2,2-Tetrachloroethane	U
Toluene	3 J
Chlorobenzene	U
Ethylbenzene	U
Styrene	U
Xylene (Total)	U
<u>TENTATIVELY IDENTIFIED</u>	
<u>COMPOUNDS</u>	
Cyclotetrasiloxane, octameth	24 J*
Benzeethanamine, N-[(penta	160 J*
Cyclopentane, 2-ethylidene-1	8 J*
Unknown	6 J*

QUALIFIERS:

U: Analyzed for but not detected

B: Compound found in blank as well as sample

J: Compound found below detection limit

J*: Estimated value

U*: Data qualified as non-detect based on data validation

TABLE 4-2 (continued)
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
SUBSURFACE SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Page 1 of 2

SAMPLE ID	SP-MW-2	SP-MW-2RE
SAMPLE DEPTH	(5'-7')	(5'-7')
DATE SAMPLED	09/22/93	09/22/93
DILUTION FACTOR	[1]	[20]
UNITS	(ug/kg)	(ug/kg)
PARAMETER		
Phenol	U	U
bis(2-Chloroethyl)Ether	U	U
2-Chlorophenol	U	U
1,3-Dichlorobenzene	U	U
1,4-Dichlorobenzene	U	U
1,2-Dichlorobenzene	U	U
2-Methylphenol	U	U
2,2'-oxybis(1-Chloropropane)	U	U
4-Methylphenol	U	U
N-Nitroso-di-n-propylamine	U	U
Hexachloroethane	U	U
Nitrobenzene	U	U
Isophorone	U	U
2-Nitrophenol	U	U
2,4-Dimethylphenol	U	U
bis(2-Chloroethoxy)methane	U	U
2,4-Dichlorophenol	U	U
1,2,4-Trichlorobenzene	U	U
Naphthalene	U	U
4-Chloroaniline	U	U
Hexachlorobutadiene	U	U
4-Chloro-3-methylphenol	U	U
2-Methylnaphthalene	U	U
Hexachlorocyclopentadiene	U	U
2,4,6-Trichlorophenol	U	U
2,4,5-Trichlorophenol	U	U
2-Chloronaphthalene	U	U
2-Nitroaniline	U	U
Dimethylphthalate	U	U
Acenaphthylene	U	U
2,6-Dinitrotoluene	U	U
3-Nitroaniline	U	U
Acenaphthene	U	U
2,4-Dinitrophenol	U	U
4-Nitrophenol	U	U
Dibenzofuran	U	U
2,4-Dinitrotoluene	U	U
Diethylphthalate	U	U
4-Chlorophenyl-phenylether	U	U

QUALIFIER:

U: Analyzed for but not detected

NOTE:

RE: Re-extract

TABLE 4-2 (continued)
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
SUBSURFACE SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Page 2 of 2

SAMPLE ID	SP-MW-2	SP-MW-2RE
SAMPLE DEPTH	(5'-7')	(5'-7')
DATE SAMPLED	09/22/93	09/22/93
DILUTION FACTOR	[1]	[20]
UNITS	(ug/kg)	(ug/kg)
PARAMETER		
Fluorene	U	U
4-Nitroaniline	U	U
4,6-Dinitro-2-methylphenol	U	U
N-Nitrosodiphenylamine (1)	U	U
4-Bromophenyl-phenylether	U	U
Hexachlorobenzene	U	U
Pentachlorophenol	U	U
Phenanthrene	200 J	U
Anthracene	50 J	U
Carbazole	U	U
DI-n-Butylphthalate	U	U
Fluoranthene	240 J	U
Pyrene	300 J	U
Butylbenzylphthalate	U	U
3,3'-Dichlorobenzidine	U	U
Benzo(a)anthracene	110 J	U
Chrysene	140 J	U
bis(2-Ethylhexyl)phthalate	10000 E	24000 B
Di-n-octylphthalate	330 J	1200 J
Benzo(b)fluoranthene	76 J	U
Benzo(k)fluoranthene	70 J	U
Benzo(a)pyrene	U	U
Indeno(1,2,3-cd)pyrene	U	U
Dibenz(a,h)anthracene	U	U
Benzo(g,h,i)perylene	U	U
TENTATIVELY IDENTIFIED COMPOUNDS		
Unknown	280 J*	ND
Unknown	200 J*	ND
Unknown	590 J*	ND
Unknown	250 J*	ND
Unknown	220 J*	ND
Unknown	240 J*	ND

QUALIFIERS:

U: Analyzed for but not detected
J: Compound found below detection limit
E: Compound exceeds calibration range of the instrument
B: Compound found in the blank as well as the sample
J*: Estimated value
ND: Not detected

NOTE:

RE: Re-extract

TABLE 4-2 (continued)
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
SUBSURFACE SOIL SAMPLING RESULTS
PESTICIDES/PCBS

SAMPLE ID	SP-MW-2
SAMPLE DEPTH	(5'-7')
DATE COLLECTED	09/22/93
DILUTION FACTOR	[2]
UNITS	(ug/kg)
<u>PARAMETER</u>	
alpha-BHC	U
beta-BHC	U
delta-BHC	U
gamma-BHC (Lindane)	U
Heptachlor	U
Aldrin	U
Heptachlor epoxide	U
Endosulfan I	U
Dieldrin	U
4,4'-DDE	4.4 J
Endrin	U
Endosulfan II	U
4,4'-DDD	9.3
Endosulfan Sulfate	U
4,4'-DDT	U
Methoxychlor	U
Endrin ketone	U
Endrin aldehyde	U*
alpha-Chlordane	3.2 JP
gamma-Chlordane	3.3 J
Toxaphene	U
Aroclor 1016	U
Aroclor 1221	U
Aroclor 1232	U
Aroclor 1242	U
Aroclor 1248	37 JP
Aroclor 1254	U
Aroclor 1260	U

QUALIFIERS:

U: Analyzed for but not detected

J: Compound found below detection limit

P: Concentration difference between the two
GC columns is greater than 25%

*: Qualified as non-detect based on data validation.

TABLE 4-2 (continued)
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
SUBSURFACE SOIL SAMPLING RESULTS
INORGANIC CONSTITUENTS

SAMPLE ID	SPGWMW-2
SAMPLE DEPTH	(5'-7')
DATE SAMPLED	09/22/93
UNITS	(mg/kg)
PARAMETER	
Aluminum	2680
Antimony	U*
Arsenic	1.2 B
Barium	86.2
Beryllium	U*
Cadmium	U*
Calcium	5470
Chromium	6.2
Cobalt	3.5 B
Copper	89.4
Iron	11600
Lead	85.4
Magnesium	1070
Manganese	77.9
Mercury	U
Nickel	U*
Potassium	U
Selenium	U
Silver	U
Sodium	83.8 B
Thallium	U
Vanadium	7.0 B
Zinc	139
Cyanide	0.75

QUALIFIERS:

U: Analyzed for but not detected

B: Value less than contract required
detection limits but greater than
instrument detection limits.

U*: Qualified as non-detect based on data validation

TABLE 4-2 (continued)
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
FOAM SAMPLING RESULTS
VOLATILE ORGANICS

SAMPLE ID	SP-FOAM
DATE SAMPLED	09/24/93
DILUTION FACTOR	[1]
UNITS	(ug/l)
PARAMETER	
Chloromethane	U
Bromomethane	U
Vinyl Chloride	U
Chloroethane	U
Methylene Chloride	U
Acetone	29
Carbon Disulfide	U
1,1-Dichloroethene	U
1,1-Dichloroethane	U
1,2-Dichloroethene (Total)	U
Chloroform	U
1,2-Dichloroethane	U
2-Butanone	U
1,1,1-Trichloroethane	U
Carbon Tetrachloride	U
Bromodichloromethane	U
1,2-Dichloropropane	U
cis-1,3-Dichloropropene	U
Trichloroethene	U
Dibromochloromethane	U
1,1,2-Trichloroethane	U
Benzene	U
trans-1,3-Dichloropropene	U
Bromoform	U
4-Methyl-2-Pentanone	U
2-Hexanone	U
Tetrachloroethene	U
1,1,2,2-Tetrachloroethane	U
Toluene	U
Chlorobenzene	U
Ethylbenzene	U
Styrene	U
Xylene (Total)	U
TENTATIVELY IDENTIFIED	
COMPOUNDS	
Unknown	130 J*
Unknown	6 J*
Unknown	5 J*

QUALIFIERS:

U: Analyzed for but not detected

J*: Estimated value

TABLE 4-2 (continued)
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
GROUNDWATER AND DRILL WATER SAMPLING RESULTS
VOLATILE ORGANICS

Page 1 of 2

SAMPLE ID	SPGWMW-1	SPGWMW-2	SPGWMW-3	SPGWMW-4	NYSDEC CLASS GA STANDARD/GUIDELINE
SAMPLE LOCATION	MW-1	MW-2	MW-3	MW-4	
DATE SAMPLED	10/06/93	10/07/93	10/07/93	10/07/93	
DILUTION FACTOR	[1]	[1]	[1]	[1]	
UNITS	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
PARAMETER					
Chloromethane	U	U	U	U	5 ST
Bromomethane	U	U	U	U	5 ST
Vinyl Chloride	U	U	U	U	2 ST
Chloroethane	U	U	U	U	5 ST
Methylene Chloride	U*	U*	U*	U*	5 ST
Acetone	13	150	14	U	50 GV
Carbon Disulfide	U	U	U	U	----
1,1-Dichloroethene	U	U	2 J	U	5 ST
1,1-Dichloroethane	U	U	U	U	5 ST
1,2-Dichloroethene (Total)	U	U	U	U	5 ST
Chloroform	U	U	U	U	7 ST
1,2-Dichloroethane	2 J	U	U	U	5 ST
2-Butanone	U	U	U	U	----
1,1,1-Trichloroethane	U	U	U	U	5 ST
Carbon Tetrachloride	U	U	U	U	5 ST
Bromodichloromethane	U	U	U	U	50 GV
1,2-Dichloropropane	U	U	U	U	5 ST
cis-1,3-Dichloropropene	U	U	U	U	5 ST
Trichloroethene	U	U*	U*	U	5 ST
Dibromochloromethane	U	U	U	U	50 GV
1,1,2-Trichloroethane	U	U	U	U	5 ST
Benzene	U	U	2 J	U	0.7 ST
trans-1,3-Dichloropropene	U	U	U	U	5 ST
Bromoform	U	U	U	U	50 GV
4-Methyl-2-Pentanone	U	U	U	U	----
2-Hexanone	U	U	U	U	50 GV
Tetrachloroethene	U	U	U	U	5 ST
1,1,2,2-Tetrachloroethane	U	U	U	U	5 ST
Toluene	U	4 J	13	U	5 ST
Chlorobenzene	U	U	2 JN	U	5 ST
Ethylbenzene	U	U	U	U	5 ST
Styrene	U	U	U	U	5 ST
Xylene (Total)	U	U	U	U	5 ST*
TENTATIVELY IDENTIFIED COMPOUNDS					
Cyclotrisiloxane, hexamethyl	6 J*	ND	ND	5 J*	----
Cyclotetrasiloxane, octameth	23 J*	76 J*	14 J*	78 J*	----
Benzeneethanamine, N-[(pent	19 J*	68 J*	13 J*	20 J*	----
Isopropyl alcohol	ND	9 J*	ND	ND	----
2-Pentanone, 4,4-dimethyl-	ND	13 J*	27 J*	ND	----

QUALIFIERS:

U: Analyzed for but not detected
B: Compound found in blank as well as sample
J: Compound found below detection limit
J*: Estimated value
ND: Not detected
U*: Qualified as non-detect based on data validation
N: Tentative identification based on data validation

NOTES:

GV: Guidance value
ST: Standard
ST*: Applies to each isomer individually
----: Not established
: Exceeds standard/guideline

TABLE 4-2 (continued)
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
GROUNDWATER AND DRILL WATER SAMPLING RESULTS
VOLATILE ORGANICS

Page 2 of 2

SAMPLE ID	SPGWMW-5	SP-DW-1	TRIP BLANK	
SAMPLE LOCATION	MW-3 (DUP)	DRILL RIG	NA	NYSDEC CLASS GA
DATE SAMPLED	10/07/93	09/29/93	10/07/93	STANDARD/GUIDELINE
DILUTION FACTOR	[1]	[1]	[1]	
UNITS	(ug/l)	(ug/l)	(ug/l)	(ug/l)
PARAMETER				
Chloromethane	U	U	U	5 ST
Bromomethane	U	U	U	5 ST
Vinyl Chloride	U	U	U	2 ST
Chloroethane	U	U	U	5 ST
Methylene Chloride	U*	U*	U*	5 ST
Acetone	19	U	U	50 GV
Carbon Disulfide	U	U	U	----
1,1-Dichloroethene	U	U	U	5 ST
1,1-Dichloroethane	U	U	U	5 ST
1,2-Dichloroethene (Total)	U	U	U	5 ST
Chloroform	U	U	U	7 ST
1,2-Dichloroethane	U	U	U	5 ST
2-Butanone	U	U	U	----
1,1,1-Trichloroethane	U	U	U	5 ST
Carbon Tetrachloride	U	U	U	5 ST
Bromodichloromethane	U	U	U	50 GV
1,2-Dichloropropane	U	U	U	5 ST
cis-1,3-Dichloropropene	U	U	U	5 ST
Trichloroethene	U	U	4 J	5 ST
Dibromochloromethane	U	U	U	50 GV
1,1,2-Trichloroethane	U	U	U	5 ST
Benzene	U	U	U	0.7 ST
trans-1,3-Dichloropropene	U	U	U	5 ST
Bromoform	U	U	U	50 GV
4-Methyl-2-Pentanone	U	U	U	----
2-Hexanone	U	U	U	50 GV
Tetrachloroethene	U	U	U	5 ST
1,1,2,2-Tetrachloroethane	U	U	U	5 ST
Toluene	9 J	U	U	5 ST
Chlorobenzene	U	U	U	5 ST
Ethylbenzene	U	U	U	5 ST
Styrene	U	U	U	5 ST
Xylene (Total)	U	U	U	5 ST*
TENTATIVELY IDENTIFIED				
COMPOUNDS				
2-Pentanone, 4,4-dimethyl-	20 J*	ND	ND	----
Benzeneethanamine, N-[(penta	5 J*	ND	ND	----
Cyclotetrasiloxane, octameth	ND	19 J*	16 J*	----
Benzoic acid, 2-[(trimethyls	ND	6 J*	ND	----

QUALIFIERS:

U: Analyzed for but not detected
B: Compound found in blank as well as sample
J: Compound found below detection limit
J*: Estimated value
ND: Not detected
U*: Qualified as non-detect based on data validation

NOTES:

GV: Guidance value
ST: Standard
ST*: Applies to each isomer individually
----: Not established
: Exceeds standard/guideline

TABLE 4-2 (continued)
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
GROUNDWATER SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Page 1 of 3

SAMPLE ID	SPGWMW-1	SPGWMW-2	SPGWMW-3	SPGWMW-4	SPGWMW-5	NYSDEC CLASS GA STANDARD/GUIDELINE
SAMPLE LOCATION	MW-1	MW-2	MW-3	MW-4	MW-3 (DUP)	
DATE SAMPLED	10/06/93	10/07/93	10/07/93	10/07/93	10/07/93	
DILUTION FACTOR	[1]	[1]	[1]	[1]	[1]	
UNITS	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
PARAMETER						
Phenol	U	U	U	U	U	1 ST
bis(2-Chloroethyl)Ether	U	U	U	U	U	1 ST
2-Chlorophenol	U	U	U	U	U	1 ST
1,3-Dichlorobenzene	U	U	U	U	U	5 ST
1,4-Dichlorobenzene	U	U	U	U	U	4.7 ST*
1,2-Dichlorobenzene	U	U	U	U	U	4.7 ST*
2-Methylphenol	U	U	U	U	U	1 ST**
2,2'-oxybis(1-Chloropropane)	U	U	U	U	U	----
4-Methylphenol	U	U	U	U	U	1 ST**
N-Nitroso-di-n-propylamine	U	U	U	U	U	----
Hexachloroethane	U	U	U	U	U	5 ST
Nitrobenzene	U	U	U	U	U	5 ST
Isophorone	U	U	U	U	U	50 GV
2-Nitrophenol	U	U	U	U	U	1 ST**
2,4-Dimethylphenol	U	U	U	U	U	1 ST**
bis(2-Chloroethoxy)methane	U	U	U	U	U	5 ST
2,4-Dichlorophenol	U	U	U	U	U	1 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	5 ST
Naphthalene	U	U	U	U	U	10 GV
4-Chloroaniline	U	U	U	U	U	5 ST
Hexachlorobutadiene	U	U	U	U	U	5 ST
4-Chloro-3-methylphenol	U	U	U	U	U	1 ST
2-Methylnaphthalene	U	1 JN	U	U	U	----
Hexachlorocyclopentadiene	U	U	U	U	U	5 ST
2,4,6-Trichlorophenol	U	U	U	U	U	1 ST
2,4,5-Trichlorophenol	U	U	U	U	U	1 ST
2-Chloronaphthalene	U	U	U	U	U	10 GV
2-Nitroaniline	U	U	U	U	U	5 ST
Dimethylphthalate	U	U	U	U	U	50 GV
Acenaphthylene	U	U	U	U	U	----
2,6-Dinitrotoluene	U	U	U	U	U	5 ST
3-Nitroaniline	U	U	U	U	U	5 ST
Acenaphthene	U	U	U	U	1 J	20 GV
2,4-Dinitrophenol	U	U	U	U	U	1 ST**
4-Nitrophenol	U	U	U	U	U	1 ST**
Dibenzofuran	U	U	U	U	U	----
2,4-Dinitrotoluene	U	U	U	U	U	5 ST
Diethylphthalate	U	U	20	U	15	50 GV
4-Chlorophenyl-phenylether	U	U	U	U	U	----

QUALIFIERS:

U: Analyzed for but not detected
J: Compound found below detection limit
N: Tentative identification based on data validation

NOTES:

GV: Guidance value
ST: Standard
ST*: Applies to each isomer individually
ST**: Standard applies to total phenols
----: Not established

TABLE 4-2 (continued)
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
GROUNDWATER SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Page 2 of 3

SAMPLE ID	SPGWMW-1	SPGWMW-2	SPGWMW-3	SPGWMW-4	SPGWMW-5	NYSDEC CLASS GA STANDARD/GUIDELINE
SAMPLE LOCATION	MW-1	MW-2	MW-3	MW-4	MW-3 (DUP)	
DATE SAMPLED	10/06/93	10/07/93	10/07/93	10/07/93	10/07/93	
DILUTION FACTOR	[1]	[1]	[1]	[1]	[1]	
UNITS	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
PARAMETER						
Fluorene	U	U	U	U	U	50 GV
4-Nitroaniline	U	U	U	U	U	5 ST
4,6-Dinitro-2-methylphenol	U	U	U	U	U	----
N-Nitrosodiphenylamine (1)	U	U	U	U	U	50 GV
4-Bromophenyl-phenylether	U	U	U	U	U	----
Hexachlorobenzene	U	U	U	U	U	0.35 ST
Pentachlorophenol	U	U	U	U	U	1 ST
Phenanthrene	U	U	U	U	U	50 GV
Anthracene	U	U	1 J	U	3 J	50 GV
Carbazole	U	U	U	U	U	----
Di-n-Butylphthalate	U	U	U	U	U	50 ST
Fluoranthene	U	U	U	U	U	50 GV
Pyrene	U	U	U	U	U	50 GV
Butylbenzylphthalate	U	U	U	U	U	50 GV
3,3'-Dichlorobenzidine	U	U	U	U	U	5 ST
Benzo(a)anthracene	U	U	U	U	U	0.002 GV
Chrysene	U	U	U	U	U	0.002 GV
bis(2-Ethylhexyl)phthalate	3 J	6 J	1 J	5 J	3 J	50 ST
Di-n-octylphthalate	U	U	U	U	U	50 GV
Benzo(b)fluoranthene	U	U	U	U	U	0.002 GV
Benzo(k)fluoranthene	U	U	U	U	U	0.002 GV
Benzo(a)pyrene	U	U	U	U	U	ND ST
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	0.002 GV
Dibenz(a,h)anthracene	U	U	U	U	U	----
Benzo(g,h,i)perylene	U	U	U	U	U	----

QUALIFIERS:

U: Analyzed for but not detected

J: Compound found below detection limit

NOTES:

GV: Guidance value

ST: Standard

----: Not established

TABLE 4-2 (continued)
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
GROUNDWATER SAMPLING RESULTS
SEMIVOLATILE ORGANICS

Page 3 of 3

SAMPLE ID	SPGWMW-1	SPGWMW-2	SPGWMW-3	SPGWMW-4	SPGWMW-5
SAMPLE LOCATION	MW-1	MW-2	MW-3	MW-4	MW-3 (DUP)
DATE SAMPLED	10/06/93	10/07/93	10/07/93	10/07/93	10/07/93
DILUTION FACTOR	[1]	[1]	[1]	[1]	[1]
UNITS	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
<u>TENTATIVELY IDENTIFIED COMPOUNDS</u>					
Unknown	2 J*	6 J*	26 J*	3 J*	3 J*
Unknown acid	3 J*	ND	ND	ND	ND
Unknown	4 J*	14 J*	10 J*	3 J*	3 J*
Unknown	6 J*	8 J*	49 J*	3 J*	3 J*
Unknown	ND	12 J*	12 J*	2 J*	23 J*
Unknown	ND	13 J*	6 J*	16 J*	4 J*
Unknown	ND	18 J*	26 J*	2 J*	5 J*
Unknown	ND	9 J*	16 J*	ND	5 J*
Unknown	ND	12 J*	16 J*	ND	4 J*
Unknown	ND	5 J*	7 J*	ND	8 J*
Unknown	ND	10 J*	9 J*	ND	46 J*
Unknown	ND	7 J*	9 J*	ND	2 J*
Unknown	ND	12 J*	10 J*	ND	7 J*
Unknown	ND	7 J*	33 J*	ND	2 J*
Unknown	ND	6 J*	7 J*	ND	33 J*
Unknown	ND	7 J*	6 J*	ND	11 J*
Unknown	ND	11 J*	6 J*	ND	16 J*
Unknown	ND	24 J*	25 J*	ND	28 J*
Unknown	ND	21 J*	6 J*	ND	7 J*
Unknown	ND	51 J*	7 J*	ND	31 J*
Unknown	ND	23 J*	21 J*	ND	ND

QUALIFIERS:

J*: Estimated value

ND: Not Detected

TABLE 4-2 (continued)
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
GROUNDWATER SAMPLING RESULTS
PESTICIDES/PCBS

SAMPLE ID	SPGWMW-1	SPGWMW-2	SPGWMW-3	SPGWMW-4	SPGWMW-5	NYSDEC CLASS GA STANDARD/GUIDELINE
SAMPLE LOCATION	MW-1	MW-2	MW-3	MW-4	MW-3 (DUP)	
DATE COLLECTED	10/06/93	10/07/93	10/07/93	10/07/93	10/07/93	
DILUTION FACTOR	[1]	[1]	[1]	[1]	[1]	
UNITS	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
PARAMETER						
alpha-BHC	U	U	U	U	U	ND ST
beta-BHC	U	U	U	U	U	ND ST
delta-BHC	U	U	U	U	U	ND ST
gamma-BHC (Lindane)	U	U	U	U	U	ND ST
Heptachlor	U	U	U	U	U	ND ST
Aldrin	U	U	U	U	U	ND ST
Heptachlor epoxide	U	U	U	U	U	ND ST
Endosulfan I	U	U	U	U	U	ND ST
Dieldrin	U	U	U	U	U	ND ST
4,4'-DDE	U	U	U	U	U	ND ST*
Endrin	U	U	U	U	U	ND ST
Endosulfan II	U	U	U	U	U	----
4,4'-DDD	U	U	U	U	U	ND ST*
Endosulfan Sulfate	U	U	U	U	U	----
4,4'-DDT	U	U	U	U	U	ND ST*
Methoxychlor	U	U	U	U	U	35 ST
Endrin ketone	U	U	U	U	U	0.1 ST
Endrin aldehyde	U	U	U	U	U	5 ST
alpha-Chlordane	U	U	U	U	U	0.1 ST
gamma-Chlordane	U	U	U	U	U	0.1 ST
Toxaphene	U	U	U	U	U	ND ST
Aroclor 1016	U	U	U	U	U	0.1 ST
Aroclor 1221	U	U	U	U	U	0.1 ST
Aroclor 1232	U	U	U	U	U	0.1 ST
Aroclor 1242	U	U	U	U	U	0.1 ST
Aroclor 1248	U	U	U	U	U	0.1 ST
Aroclor 1254	U	U	U	U	U	0.1 ST
Aroclor 1260	U	U	U	U	U	0.1 ST

QUALIFIERS:

U: Analyzed for but not detected

NOTES:

ST: Standard

ND: Not detected

----: Not established

ST*: Standard applies to sum of these compounds

TABLE 4-2 (continued)
STECK AND PHILBIN LANDFILL
PRELIMINARY SITE ASSESSMENT
GROUNDWATER SAMPLING RESULTS
INORGANIC CONTITUENTS

SAMPLE ID	SPGWMW-1	SPGWMW-2	SPGWMW-3	SPGWMW-4	SPGWMW-5	
SAMPLE LOCATION	MW-1	MW-2	MW-3	MW-4	MW-3 (DUP)	NYSDEC CLASS GA
DATE SAMPLED	10/06/93	10/07/93	10/07/93	10/07/93	10/07/93	STANDARD/GUIDLELINE
UNITS	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
PARAMETER						
Aluminum	16100	10800	563	30100	29300	----
Antimony	32.3 B	U	U	U	U	3 GV
Arsenic	U	U	U	U	U	25 ST
Barium	228	165 B	130 B	262	262	1000 ST
Beryllium	U	U	U	1.6 B	1.6 B	3 GV
Cadmium	U	U	U	U	U	10 ST
Calcium	58600	45900	46100	24900	25200	----
Chromium	61.6	U**	U**	61.9	56.2	50 ST
Cobalt	59.7	95.2	26.9 B	41.3 B	38.6 B	----
Copper	14.9 B*	36 *	U*	43 *	43 *	200 ST
Iron	24900	28300	1230	48500	44000	300 ST
Lead	23.2	30.6	23.2	U	21.7	25 ST
Magnesium	15400	26800	19500	55900	57500	35000 ST
Manganese	3970	7480	3500	26500	27100	300 ST
Mercury	0.2	0.22	0.36	U	0.2	2 ST
Nickel	U	U	21.9 B	35.4 B	46.6	----
Potassium	8590	7060	14600	56900	57200	----
Selenium	U	U	U	U	U	10 ST
Silver	U	U	U	U	U	50 ST
Sodium	310000	109000	23100	233000	241000	20000 ST
Thallium	U	U	U	U	U	4 GV
Vanadium	35.3 B	110	U	143	134	----
Zinc	80.6	59.6	22	60.4	59.3	300 ST
Cyanide	U	U	14.8	U	16.2	100 ST

QUALIFIERS:

U: Analyzed for but not detected

B: Value less than contract required
detection limits but greater than
instrument detection limits.

*: Qualified as per data validation.

U**: Qualified as non-detect based on data validation

NOTES:

GV: Guidance Value

ST: Standard

----: Not established

: Exceeds standard/guideline

5.0 CONCLUSIONS AND RECOMMENDATIONS

The primary objective of the Steck and Philbin Development Company site Preliminary Site Assessment is to document disposal of hazardous waste and determine if groundwater contamination has occurred and the nature of such contamination as a result of reported disposal of non-C&D materials on-site.

5.1 Conclusions

Levels of total volatile organic compounds as measured with the OVA exceeded 1000 ppm in a few locations during the on-site soil vapor survey. Lack of correlation with total volatile organic compound measurements obtained at the same locations with the Microtip indicate that the primary compound being detected on-site is probably methane.

Based on the chemical analysis of the subsurface soil sample from MW-2 (5-7'), little contamination was found in the sample. The somewhat elevated concentration of bis(2-ethylhexyl)phthalate detected potentially may have been caused by the presence of plastic in the sample.

Based upon the chemical analysis of groundwater samples, there does not appear to be any significant contamination of groundwater at the Steck and Philbin Development Company site. Benzene and toluene were detected slightly above groundwater standards. Elevated concentrations of select inorganic constituents may indicate groundwater of slightly degraded quality at all on-site locations. Of particular interest is the detection of iron, manganese and sodium in on-site groundwater above their class GA groundwater standards. Additionally, antimony, chromium and lead concentrations were detected just above their standards in on-site groundwater.

Samples exhibiting high turbidities (increased particulate material) have likely affected the concentrations of inorganic constituents detected in on-site groundwater.

Although the wells installed as part of this investigation do not provide upgradient groundwater quality, downgradient groundwater contamination is not significant and therefore upgradient information is not needed to evaluate the site.

Based upon the results of the review of historical information and subsurface soil and groundwater sampling, there is no evidence of significant contamination from disposal of non-C&D material or documentation regarding disposal of hazardous waste at the Steck and Philbin Development Company site.



5.2 Recommendations

Since there is no evidence of significant contamination or documentation of disposal of hazardous waste at this site as a result of this investigation, there does not appear to be a need for any additional investigation under the New York State Superfund Program. However, additional investigation regarding site hydrogeology and groundwater quality should be conducted under 6NYCRR Part 360 during closure monitoring for the site. In particular, it is recommended that the groundwater sampling results for inorganic constituents be confirmed through analysis of filtered samples. The objective of such an effort is to determine dissolved antimony, chromium and lead concentrations in the on-site groundwater. It is also recommended that periodic/annual groundwater monitoring be conducted to detect the possible release of contaminants in the future.

Also as part of closure, further investigation to define vertical and horizontal groundwater flow direction and upgradient water quality is recommended. This can be conducted by review of local information and may not require installation of additional monitoring wells.

APPENDIX A

GEOPHYSICAL INVESTIGATION REPORT

**MAGNETIC SURVEY
PRELIMINARY SITE ASSESSMENT
STECK & PHILBIN C&D LANDFILL
SMITHTOWN, SUFFOLK COUNTY
NEW YORK**

NYSDEC Site No. 152096
Work Assignment D0002708-7

Prepared for:

Dvirka and Bartilucci Consulting Engineers
6800 Jericho Turnpike
Syosset, New York 11791

Prepared by:

Hager-Richter Geoscience, Inc.
8 Industrial Way - D10
Salem, New Hampshire 03079

File 93D26-D
September, 1993

Magnetic Survey
Preliminary Site Assessment
Steck & Philbin C&D Landfill
Smithtown, New York
File 93D26-D September, 1993

0. EXECUTIVE SUMMARY

Hager-Richter Geoscience, Inc. conducted a magnetic survey at the Steck & Philbin C&D Landfill, Town of Smithtown, Suffolk County, New York for Dvirka and Bartilucci Consulting Engineers (D&B) on September 15, 1993. The geophysical survey is part of a Preliminary Site Assessment by D&B for the New York State Department of Environmental Protection (NYSDEC). The objective of the magnetic survey was to determine whether subsurface ferrous metal objects are present at the proposed locations of four monitoring wells.

The Steck & Philbin C&D Landfill is an inactive construction and demolition debris landfill located on Old Northport Road. The landfill is located in a former sand and gravel pit.

The four proposed monitoring wells are located around the perimeter of the landfill. The magnetic survey was conducted on a 5-foot by 5-foot grid in an approximately 30-foot by 30-foot area centered, where possible, on each of the proposed monitoring well locations specified by D&B. Two proposed well locations are adjacent to fencing along the property line, and the survey was conducted on the Site side of the fencing. Data for the total magnetic field and vertical magnetic gradient were collected at each proposed monitoring well location.

Based on the magnetic survey at the Steck & Philbin C&D Landfill, we conclude:

- The total magnetic field data for two proposed monitoring well locations (MW-1 and MW-2) are affected by their proximity to chain link fencing surrounding portions of the property. The magnetic effects of the fence may mask the effects of subsurface ferrous metal objects, if any is present at that location, and no firm conclusion can be made based on the magnetic data alone about the presence or absence of ferrous metal objects in the subsurface at those locations.
- Subsurface ferrous metal objects do not appear to be present at the proposed locations of MW-3 and MW-4.

Magnetic Survey
Preliminary Site Assessment
Steck & Philbin C&D Landfill
Smithtown, New York
File 93D26-D September, 1993

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APPENDIX

Magnetic Survey

Magnetic Survey
Preliminary Site Assessment
Steck & Philbin C&D Landfill
Smithtown, New York
File 93D26-D September, 1993

1. INTRODUCTION

Hager-Richter Geoscience, Inc. conducted a magnetic survey at the Steck & Philbin C&D Landfill, Town of Smithtown, Suffolk County, New York for Dvirka & Bartilucci Consulting Engineers (D&B) of Syosset, New York on September 15, 1993. The geophysical survey is part of a Preliminary Site Assessment by D&B for the New York State Department of Environmental Conservation (NYSDEC).

The Steck & Philbin C&D Landfill is an inactive construction and demolition debris landfill located on Old Northport Road in the Town of Smithtown. Figure 1 shows the general location of the Site, and Figure 2 is a Site sketch plan. The landfill is located in a former sand and gravel pit.

The objective of the magnetic survey was to determine whether subsurface ferrous metal objects are present at the proposed locations of four monitoring wells. D&B specified the proposed locations or areas of the monitoring wells, and they are shown in Figure 2.

Jeffrey Mann of Hager-Richter conducted the magnetic survey. The project was coordinated with Ms. Maria Dioguardi and Ms. Caroline Yates of D&B. Mr. Peter Conde and Ms. Fran Tooher of D&B were present on Site and observed the field operations. All work was conducted under Level D personal protection. Data analysis and interpretation were completed at the Hager-Richter offices. Original data and field notes will be retained in the Hager-Richter files for a minimum of three years.

Magnetic Survey
Preliminary Site Assessment
Steck & Philbin C&D Landfill
Smithtown, New York
File 93D26-D September, 1993

2. EQUIPMENT AND PROCEDURES

2.1 General

The equipment and general procedures used for the magnetic survey are described in the Appendix.

2.2 Limitations of the Method

The data recorded in magnetic surveys are affected by any ferrous metal object and some electromagnetic fields. Surface objects containing iron, such as vehicles, dumpsters, tanks, and drums -- in short, any fairly large ferrous metal object -- and the electromagnetic fields associated with power lines can affect magnetic data so that the effects of buried metal objects, if any, at or near the same location are "masked." Thus, where magnetic anomalies can be attributed to surface features, the presence or absence of buried metal objects cannot be determined from the magnetic data alone.

We note explicitly that *identification* and *detection* are not equivalent. The magnetic method is excellent for detecting ferrous metal objects, but, in general, it is poor for identifying those objects. A cluster of drums, a 10,000 gallon UST, and a crushed automobile can produce essentially the same magnetic signature, and cannot be distinguished on the basis of magnetic data alone. In general, the identity of the object causing a magnetic anomaly must be established on some basis other than the magnetic data.

2.3 Site Specific

D&B specified the locations of four proposed monitoring wells, designated MW-1 through MW-4. The approximate locations of the proposed monitoring wells are shown in Figure 2. Hager-Richter established a grid in an approximately 30-foot by 30-foot area centered, where possible, on the location of each staked proposed monitoring well. The staked locations of two wells (MW-1 and MW-2) were located adjacent to chain link fencing along the property line, and the magnetic survey was conducted on the Site side of the fencing. Data for the total magnetic field and vertical magnetic gradient were collected at 5-foot intervals along lines spaced 5 feet apart in each survey area. A base station magnetometer was set up in a vacant lot located about 100 feet east of the landfill, and automatically recorded total magnetic field data at 1-minute intervals during the magnetic survey for use in data processing and to guard against collecting

Magnetic Survey
Preliminary Site Assessment
Steck & Philbin C&D Landfill
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data during magnetic storms.

3. RESULTS AND DISCUSSION

The magnetic data for the Steck & Philbin C&D Landfill are presented as contour plots of the total magnetic field and the vertical magnetic gradient in Figures 3-6. Data stations are shown in Figures 3-6 as small dots. The total magnetic field data are presented as the total intensity relative to 53,700 gammas, an arbitrary value near the "undisturbed" total magnetic field for the Site.

MW-1 and MW-2 are located adjacent to chain link fencing south and north, respectively, of the landfill. MW-3 and MW-4 are located off-Site and northeast of the landfill. MW-3 is located at the base of a slope in an area where no fencing was present.

Our interpretation of the magnetic data for the individual survey areas is as follows:

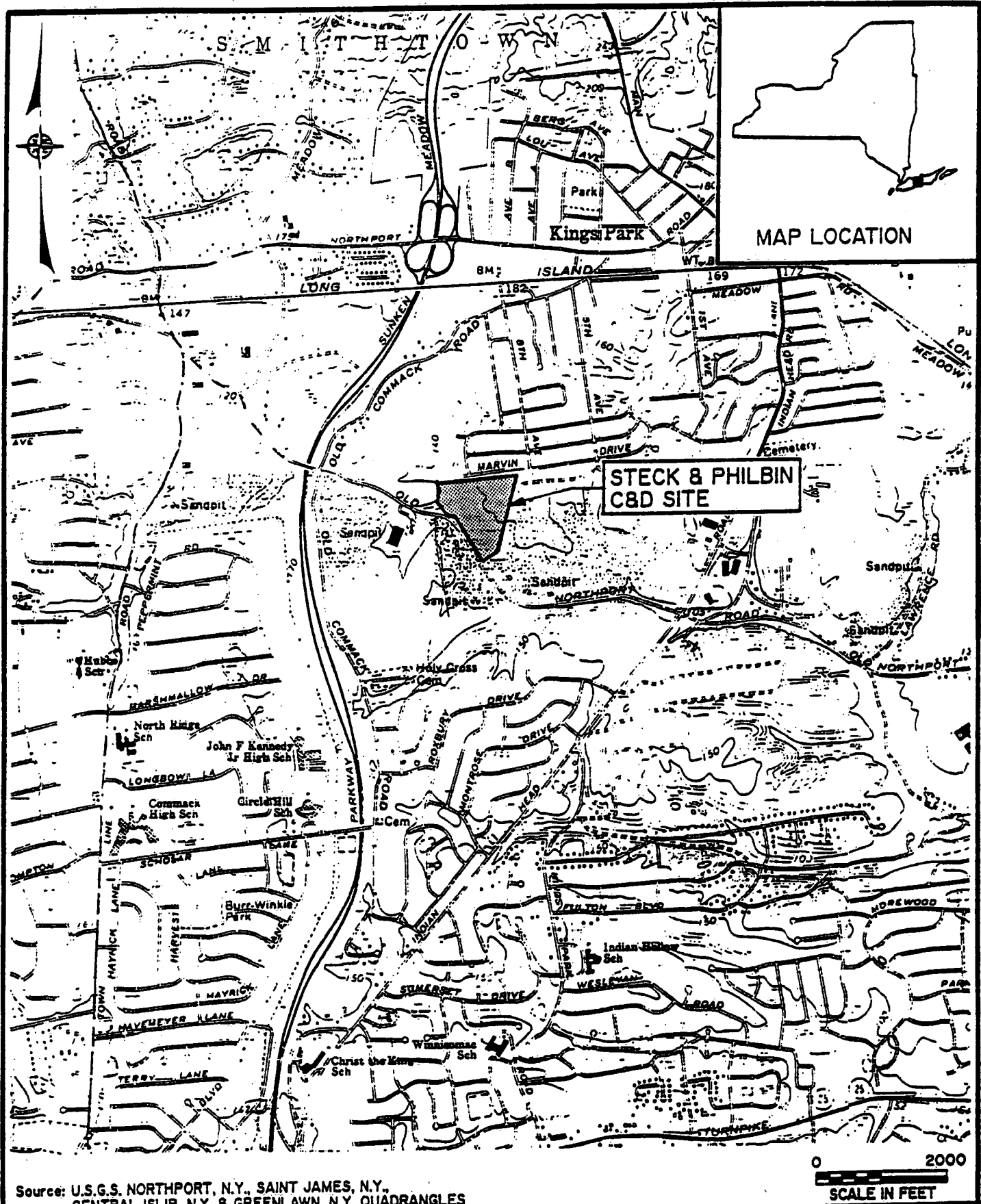
- The data for both the total magnetic field and vertical magnetic gradient for MW-1 (Figure 3) and MW-2 (Figure 4) are affected by the proximity of the staked locations with respect to the chain link fencing. The magnetic effects of the fencing could mask the effects of subsurface ferrous metal objects, if present are present, and we conclude that the magnetic data for MW-1 and MW-2 cannot be interpreted firmly in terms of the presence or absence of ferrous metal objects in the subsurface. We understand from D&B that the locations of MW-1 and MW-2 cannot be moved significantly; however, we suggest relocating the borings to areas of lower vertical magnetic gradient, if possible.
- MW-3 (Figure 5) and MW-4 (Figure 6) are located in areas of relatively undisturbed total magnetic field and low vertical magnetic gradient. The parallel contours in the plots for MW-3 are attributed to the topographic change across the survey area. We conclude that the locations of MW-3 and MW-4 are satisfactory from the perspective of buried ferrous metal objects.

Magnetic Survey
Preliminary Site Assessment
Steck & Philbin C&D Landfill
Smithtown, New York
File 93D26-D September, 1993

4. CONCLUSIONS

Based on the magnetic survey focused on the proposed locations four borings at the Steck & Philbin C&D Landfill in Smithtown, New York, we conclude:

- The total magnetic field data for two proposed monitoring well locations (MW-1 and MW-2) are affected by their proximity to chain link fencing surrounding portions of the property. The magnetic effects of the fence may mask the effects of subsurface ferrous metal objects, if any is present at that location, and no firm conclusion can be made about the presence or absence of ferrous metal objects in the subsurface at those locations.
- Subsurface ferrous metal objects do not appear to be present at the proposed locations of MW-3 and MW-4.



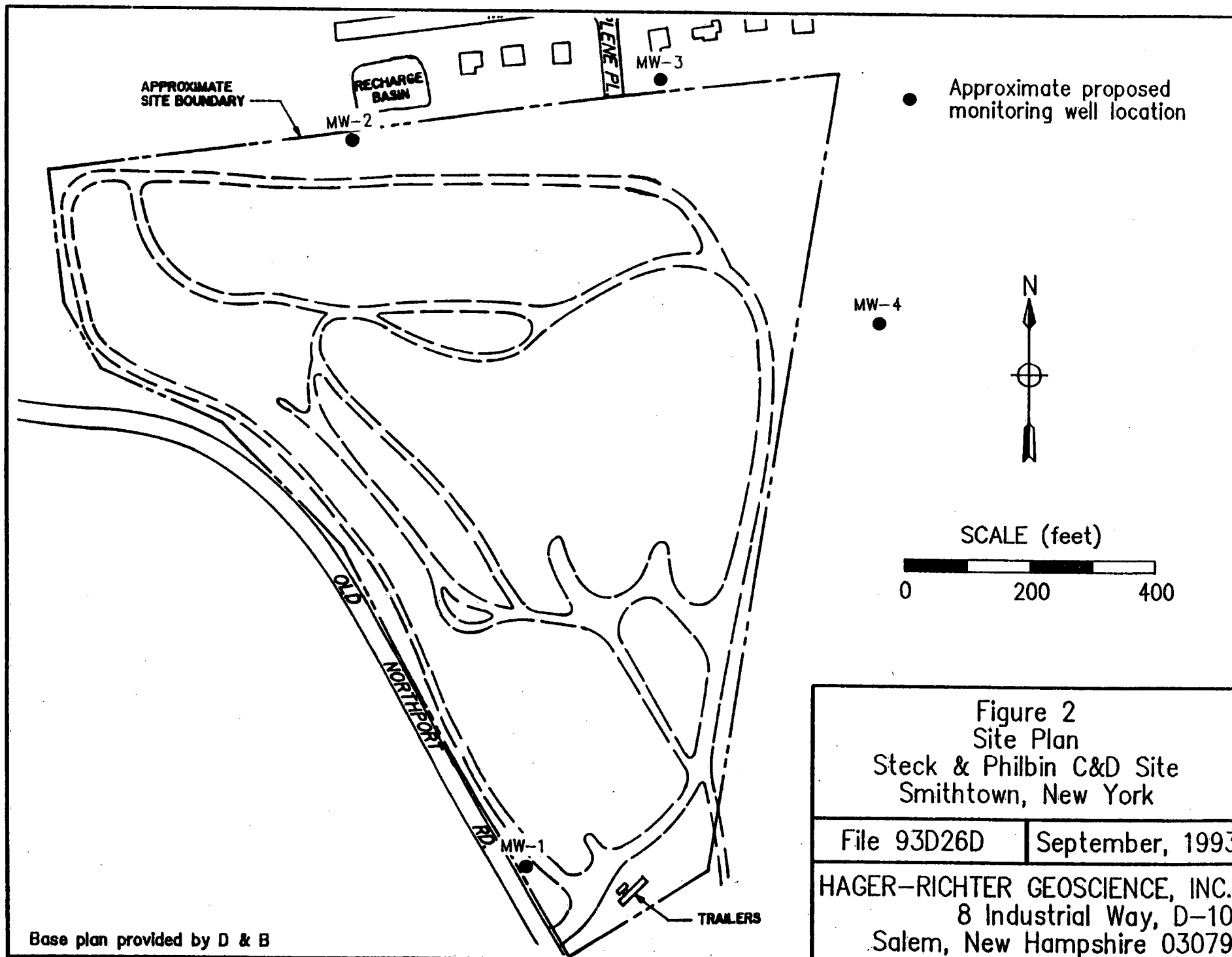
Map provide by:

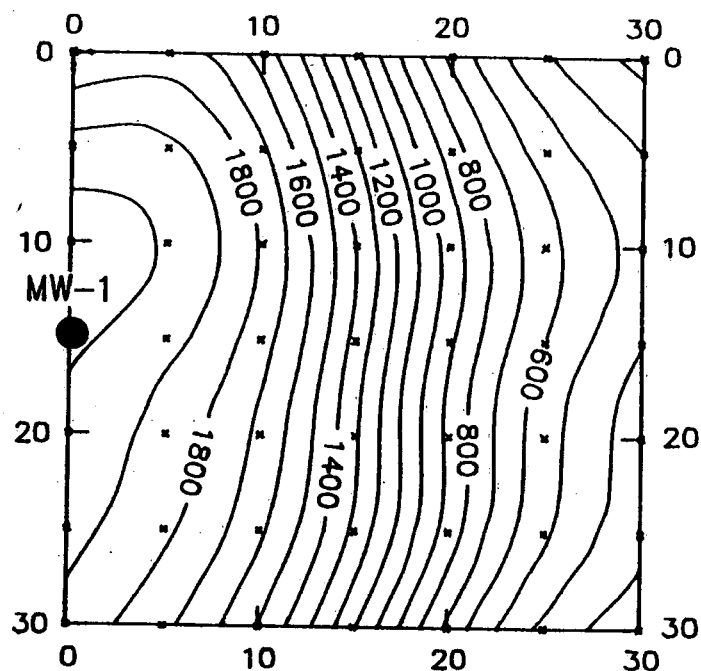


STECK & PHILBIN C&D SITE
SMITHTOWN, NEW YORK

SITE LOCATION

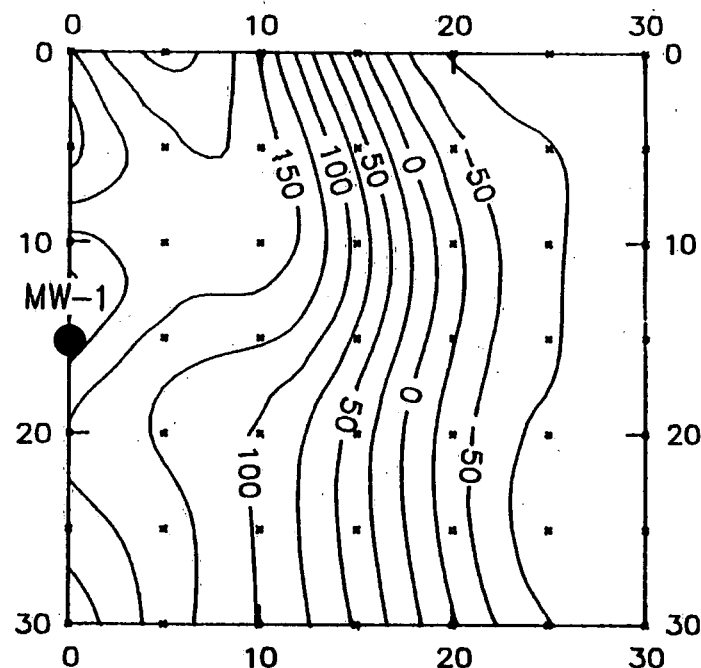
FIGURE 1





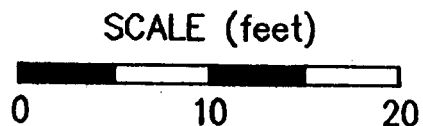
Total Magnetic Field

Contours = Total Field - 53700 Gammas
 Contour Interval = 100 Gammas
 • Data Station



Vertical Magnetic Gradient

Contour Interval = 25 Gammas/Foot
 • Data Station



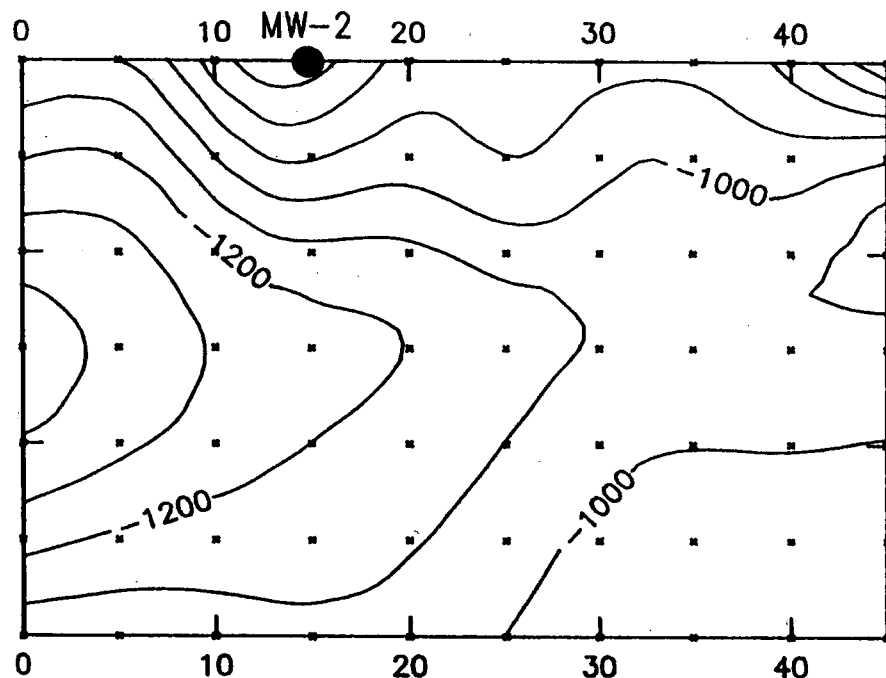
Survey grid established by D & B

Figure 3
 Magnetic Survey - MW-1
 Steck & Philbin C&D Site
 Smithtown, New York

File 93D26D

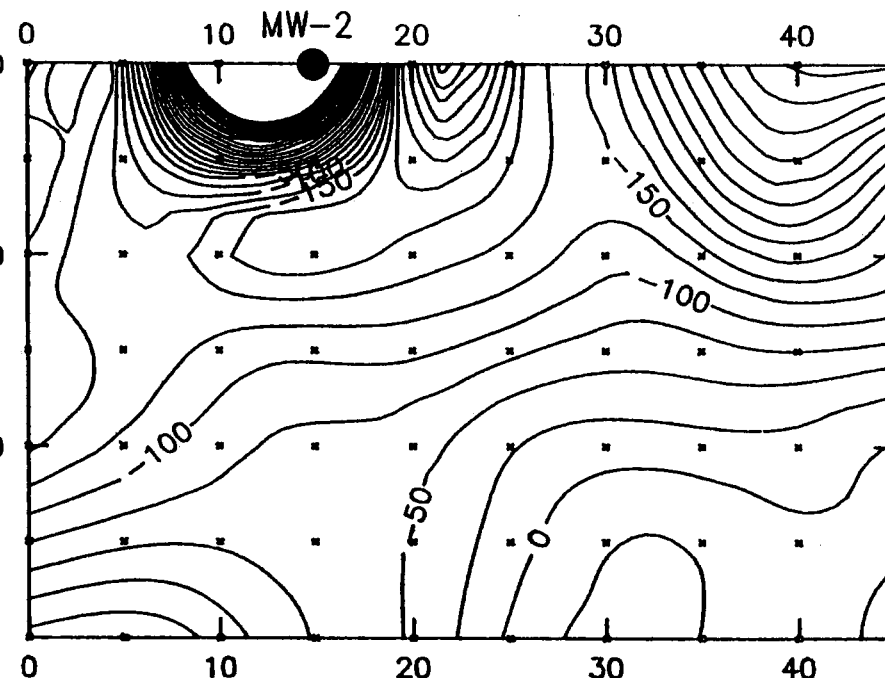
September, 1993

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 8 Industrial Way, D-10
 Salem, New Hampshire 03079



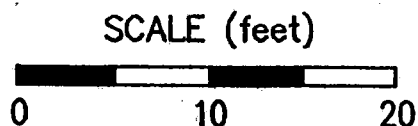
Total Magnetic Field

Contours = Total Field - 53700 Gammas
 Contour Interval = 100 Gammas
 • Data Station



Vertical Magnetic Gradient

Contours >400 Gammas/Foot not plotted
 Contour Interval = 25 Gammas/Foot
 • Data Station



Survey grid established by D & B

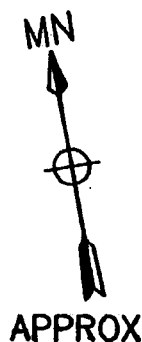
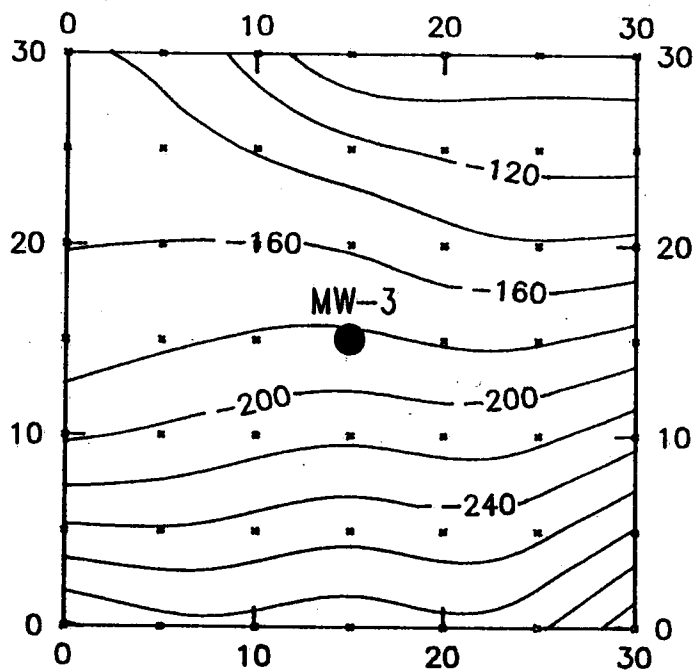


Figure 4
 Magnetic Survey - MW-2
 Steck & Philbin C&D Site
 Smithtown, New York

File 93D26D

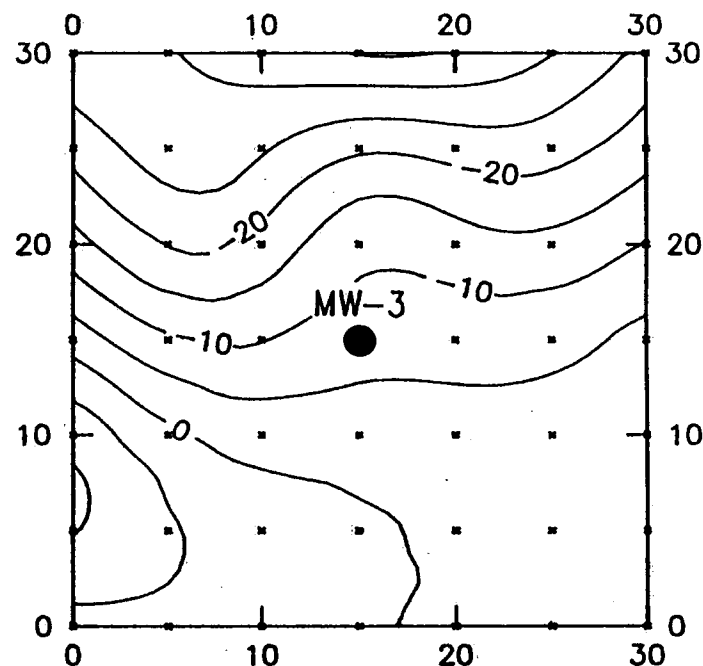
September, 1993

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 8 Industrial Way, D-10
 Salem, New Hampshire 03079



Total Magnetic Field

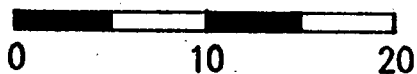
Contours = Total Field - 53700 Gammas
 Contour Interval = 20 Gammas
 ■ Data Station



Vertical Magnetic Gradient

Contour Interval = 5 Gammas/Foot
 ■ Data Station

SCALE (feet)



MN



APPROX

Figure 5

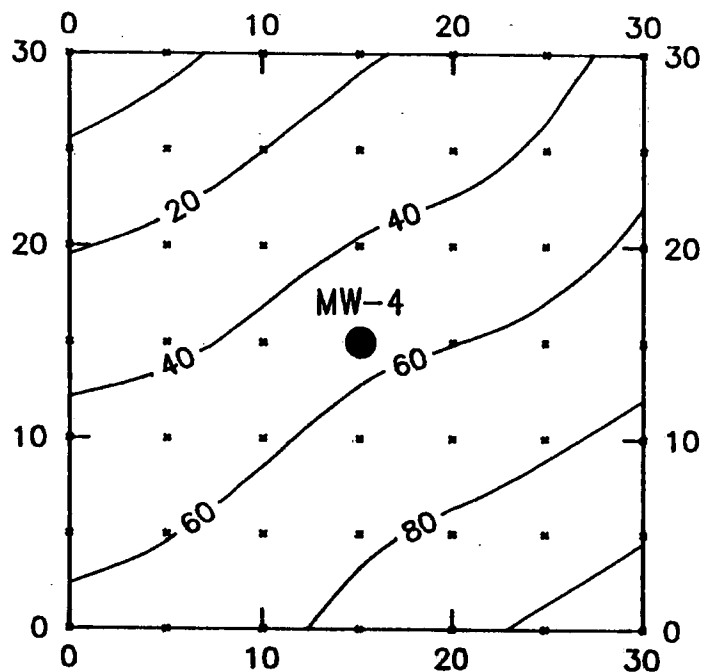
Magnetic Survey - MW-3
 Steck & Philbin C&D Site
 Smithtown, New York

File 93D26D

September, 1993

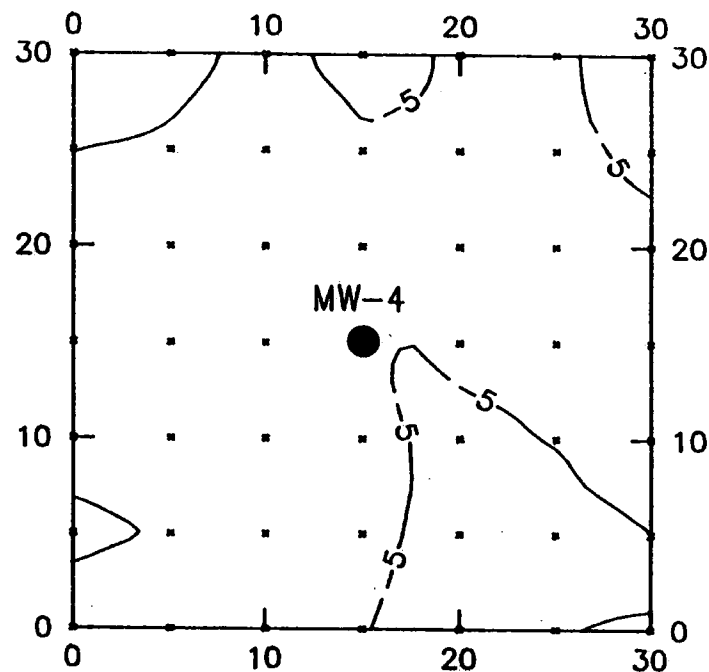
HAGER-RICHTER GEOSCIENCE, INC.
 8 Industrial Way, D-10
 Salem, New Hampshire 03079

Survey grid established by D & B



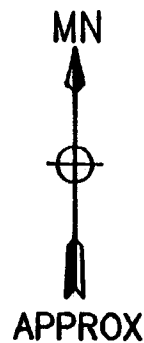
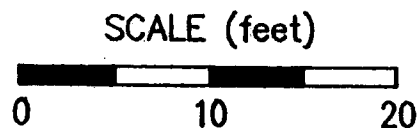
Total Magnetic Field

Contours = Total Field - 53700 Gammas
 Contour Interval = 20 Gammas
 ■ Data Station



Vertical Magnetic Gradient

Contour Interval = 5 Gammas/foot
 ■ Data Station



Survey grid established by D & B

Figure 6 Magnetic Survey - MW-4 Steck & Philbin C&D Site Smithtown, New York	
File 93D26D	September, 1993
HAGER-RICHTER GEOSCIENCE, INC. 8 Industrial Way, D-10 Salem, New Hampshire 03079	

Magnetic Survey
Preliminary Site Assessment
Steck & Philbin C&D Landfill
Smithtown, New York
File 93D26-D September, 1993

APPENDIX

MAGNETIC SURVEY

Field Work. The magnetic survey was conducted using two EG&G Model G856 Proton Precession Portable Magnetometers. The G856 is a microprocessor controlled instrument with a resolution of 0.1 gamma, an accuracy of 1 gamma, and a memory capable of storing data for approximately 3000 stations. The data are transferred to a computer at the end of each field day.

One magnetometer was used as a base station, recording the total magnetic field at two-minute intervals during the magnetic survey. Such data are necessary to correct the survey data for the temporal variation of the earth's magnetic field and to check for sudden fluctuations due to magnetic storms that may adversely affect the quality of the survey data.

The other magnetometer was used with a gradiometer option to collect the survey data. With the gradiometer option, two sensors are mounted on a staff at 4' 5 $\frac{1}{4}$ " and 9' $\frac{3}{4}$ " above ground level. Upon command, the magnetometer records the total magnetic field measured by each sensor sequentially within 4 seconds. Computer software subsequently separates the data for analysis.

Data Analysis and Interpretation. Magnetic data are most commonly presented as contour maps. The total magnetic field data are contoured using the top sensor magnetic values. Gradiometer data are processed by subtracting the top sensor value from the bottom sensor value and dividing by the distance between the sensors. All magnetic field data, including gradiometer data, were corrected for diurnal variation prior to plotting and contouring.

Total magnetic field signatures caused by one or more buried metal objects commonly consist of paired positive and negative anomalies, with the positive anomaly located slightly south of the mass and the negative anomaly located slightly toward the north. The width, gradient, and amplitude of a magnetic anomaly are functions of the mass of the causative object(s) and their distance from the magnetometer sensor; such data are useful, then, in estimating the quantity, size, and depth of the metal object(s).

Vertical magnetic gradient data, also commonly called gradiometer data, can be used to interpret the relative depth of burial of metal objects. In general, an object such as a drum located at or near the ground surface produces a much greater magnetic effect at the lower sensor than at the upper sensor. The result is a relatively large vertical magnetic gradient. If a magnetic object is deeply buried, the magnetic field measured by both sensors is nearly the same, and the vertical gradient is relatively small. Therefore, large vertical magnetic gradients indicate the presence of near-surface metallic objects.

APPENDIX B

SOIL VAPOR INVESTIGATION RESULTS



DVIRKA
AND
BARTILUCCI

AIR MONITORING FORM

PROJECT NAME: Steel & Philbin DATE: a

PROJECT NUMBER: 1227-2A INSTRUMENT: TIP/ova/LEI

RECORDED BY: F. Pouches / P. Conde CALIBRATION DATE: 9/5/93 - 9/23/93

WEATHER CONDITIONS: _____

Soil Vapor Survey

TIME	LOCATION	WIND SPEED AND DIRECTION	READING	OBSERVATIONS
	S700-W0400		0/1000/-	
	N0400-W0100		0/1000/-	
	N1100-W0400		0/600/-	
	MW-4		0/-10%	
	MW-3		1.5/-10%	
	MW-2		0/-11%	
	MW-1		4.5/-110%	
	N400-W0400		1.5/-15%	
	N600-W0400		0/-110%	
	N800-W0400		10/-10%	
	N600-W200		14/30/0%	
	N600-W400		16/40/0%	
	N600-W600		5.0/0/0%	
	N600-W800		6.8/0/0%	
	N600-W1000		2.9/1000/0%	
	N600-W1150		7.1/500/0%	
	N400-W1150		0/200/0%	
	N200-W800		0/100/0%	
	N0400-W600		0/1000/0%	
9/23/93	S-200-W200		0/300/0%	
	S200-W400		1.0/0/0%	
	S400-W200		0/1000/100%	
	S400-W300		0/1/0%	

RECORDING PROCEDURES/REMARKS: _____



DVIRKA
AND
BARTILUCCI

AIR MONITORING FORM

PROJECT NAME: Steck & Philben DATE: _____
PROJECT NUMBER: 1227-2A INSTRUMENT: Tip/OVA/LEI
RECORDED BY: J. Tooker / P. Carali CALIBRATION DATE: 9-27-93
WEATHER CONDITIONS: Cloudy, Rain, stopped for lightning
mw-1

TIME	LOCATION	WIND SPEED AND DIRECTION	READING	OBSERVATIONS
9:30	mw-1 Amb.A.	-	0.0/2/0	-
9:35	mw-1, BH	-	5.0/+1000/5%	05'
9:40	mw-1, BH	-	4.0/+1000/11%	010'
9:50	mw-1, sp	-	3.0/+1000/5%	(10-12)
9:57	mw-1, BH	-	3.2/+1000/5%	015'
10:15	mw-1, sp	-	0.0/+1000/3%	(20-22')
10:25	mw-1, sp	-	0.0/+1000/5%	(30-32')
10:39	mw-1, sp	-	0.0/100/0%	(40-42')
10:45	mw-1, BH	-	0.0/+1000/98%	050'
11:20	mw-1, sp	-	0.0/200/30%	(50-52')
11:22	mw-1, sp	-	0.0/100/0%	(60-62')
11:35	mw-1, sp	-	0.0/20/0%	(70-72')
11:45	mw-1, sp	-	0.0/20/0%	(80-82')

RECORDING PROCEDURES/REMARKS: _____



PROJECT NAME: Stech & Philben DATE: _____

PROJECT NUMBER: 1227-2A INSTRUMENT: TIP / CWA / LEL / H₂S

RECORDED BY: F. Parker / P. Conde CALIBRATION DATE: 9-22-93

WEATHER CONDITIONS: _____

[illegible]

RECORDING PROCEDURES/REMARKS: * Sample obtained



DVIRKA
AND
BARTILUCCI

AIR MONITORING FORM

PROJECT NAME: Steck & Philbin

DATE: _____

PROJECT NUMBER: 1229-2A

INSTRUMENT: TECHNOVA/LEI

RECORDED BY: F. Torker / P. Conde

CALIBRATION DATE: 9/24/93

WEATHER CONDITIONS: _____

MW-2 Cont.

TIME	LOCATION	WIND SPEED AND DIRECTION	READING	OBSERVATIONS
9:15	MW-2, BH		5/30/0%	@ 35'
9:25	MW-2, BH		2/15/0-1%	@ 40'
9:35	MW-2, SP		2/20/0%	(40-42')
9:45	MW-2, SP		5/15/0%	(50-52')
9:55	MW-2, BH		3/5/0%	@ 50'
10:00	MW-2, BH		0/0/0%	@ 60'
10:40	MW-2, SP		55/0/0%	(60-62')
10:48	MW-2, BH		-1/1000/1.5%	@ 30'
10:50	MW-2, SP		10/3/0%	(70-72')
11:03	MW-2, BH		-1/10/0%	@ 80'
11:15	MW-2, SP		0/15/0%	(80-82')
11:22	MW-2, BH		0/300/1%	@ 90'
11:25	MW-2, SP		5/30/0%	(90-92')
11:43	MW-2, BH		0.5/800/1.5%	100'
11:50	MW-2, SP		0/18/0-1.2%	(100-102')
12:05	MW-2, BH		0/5/0%	@ 110'
12:25	MW-2, SP		0/0/0%	110-112'
12:25	MW-2,			
12:35	MW-2, BH		0/0/0%	@ 115'
13:00	MW-2, BH		0/0/0%	@ 125'
13:10	MW-2, SP		0/0/0%	(125-127')

RECORDING PROCEDURES/REMARKS: _____

AMP



DVIRKA
AND
BARTILUCCI

AIR MONITORING FORM

PROJECT NAME: Skid & Philben DATE: _____
PROJECT NUMBER: 1227-2A INSTRUMENT: TIP/QUALCEL
RECORDED BY: F. Fisher / P. Condy CALIBRATION DATE: 9/28/93
WEATHER CONDITIONS: _____

mw-3

TIME	LOCATION	WIND SPEED AND DIRECTION	READING	OBSERVATIONS
11:40	MW-3, BH		0/0/0	@ 10'
11:50	MW-3, SP		0/0/0	(10-12')
11:55	MW-3, BH		0/0/0	@ 20'
12:05	MW-3, SP		0/0/0	(20-22')
12:08	MW-3, BH		0/0/0	@ 30'
12:15	MW-3, SP		0/1.5/0	(30-32')
12:26	MW-3, BH		0/0/0	@ 40'
12:34	MW-3, SP		0/0/0	(40-42')
12:52	MW-3, BH		0/0/0	@ 50'
12:54	MW-3, SP		0/0/0	(50-52')
13:00	MW-3, BH		0/0/0	@ 60'
13:05	MW-3, SP		0/0/0	(60-62')
13:15	MW-3, BH		0/0/0	@ 70'
13:20	MW-3, SP		0/0/0	(70-72')
13:30	MW-3, BH		0/0/0	@ 80'
13:40	MW-3, SP		0/0/0	(80-82')
14:05	MW-3, BH		0/0/0	@ 90'
14:10	MW-3, SP		0/0/0	(90-92')
14:20	MW-3, BH		0/0/0	@ 100'
14:25	MW-3, SP		0/0/0	(100-102')
14:45	MW-3, BH		0/0/0	@ 110'
14:55	MW-3, SP		0/0/0	(110-112')
15:25	MW-3, BH		0/0/0	@ 120'
15:29	MW-3, SP		0/0/0	(120-122')
15:33	MW-3, BH		0/0/0	@ 130'

RECORDING PROCEDURES/REMARKS: _____



DVIRKA
AND
BARTILUCCI

AIR MONITORING FORM

PROJECT NAME: Steele & Philbin DATE: _____
PROJECT NUMBER: 1227-2A INSTRUMENT: T.P./AVA/CEL
RECORDED BY: Frederick P. Conde CALIBRATION DATE: 9/30/03
WEATHER CONDITIONS: _____

mw-4

TIME	LOCATION	WIND SPEED AND DIRECTION	READING	OBSERVATIONS (Depth)
1230	mw-4, BH		0/0/0%	05'
1232	mw-4, sp		1/0/0%	(5-7)
1240	mw-4, sp		11/0/0%	(10-12)
1245	mw-4, sp		4/0/0%	(15-17)
1259	mw-4, sp		8/0/0%	(20-22)
1307	mw-4, sp		6/0/0%	(25-27)
1315	mw-4, sp		9/0/0%	(30-32)
1331	mw-4 sp		3/0/0%	(35-37)
1345	mw-4 sp		0/0/0%	(40-42)
1354	mw-4 sp		0/0/0%	(45-47)
1405	mw-4 sp		0/0/0%	(50-52)
1426	mw-4 sp		0/0/0%	(55-57)
1430	mw-4 sp		0/0/0%	(60-62)
1532	mw-4, sp		0/0/0%	(65-67)
1540	mw-4, sp		0/0/0%	(70-72)
			0	

RECORDING PROCEDURES/REMARKS: _____

AMP

APPENDIX C

**BORING LOGS/MONITORING WELL
CONSTRUCTION DIAGRAMS**

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: Steele Philbin
C&D's te

Well/Boring No.: MW-1
Sheet 1 of 9
By: AF Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: P&L
Driller: Bob Noid
Drill Rig: Drill Star 100
Sample Spoon I.D.: 3"
Date Started: 9-29-93

Geologist: Pete Long / Frank
Drilling Method: HSA 4"
Drive Hammer Wt.: _____
Date Completed: 9-29-93

Borehole Completion Depth: 85'
Borehole Diameter: 3"
Ground Surface El.: _____

* bottom of hole 85'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-		0-5' Cuttings				0-5ft. Cuttings - Dark gray to black
-1-						SAND and gravel (Fill) - miscellaneous
-2-						debris such as wood, plastic and
-3-						metal. Petroleum odor
-4-						
-5-		5-10' Cuttings				5'
-6-						gray - Tan m-c SAND and gravel
-7-						
-8-						
-9-						
-10-						10'

Remarks:

Water Level Measurement

Date

Date

Date

Date



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: STECK + Philbin

Well/Boring No.: MW1
Sheet 3 of 8
By: [Signature] Date:
Chk'd: Date:

Drilling Contractor: Rdd

Driller: Bob Novel

Drill Rig: Drill Star 100

Sample Spoon I.D.: 3"

Date Started: 9-27-93

Geologist: Conde / Traher

Drilling Method: #5 4 1/4"

Drive Hammer Wt.:

Date Completed: 9-27-93

Borehole Completion Depth: 88'

Borehole Diameter: 8"

Ground Surface El.:

bottom of hole 85'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0						
-1-						
1-2	1	10-12	20'	16-12- 14-21	3.0/100/5%	LT-TAN (yellowish) Fine-med SAND Trace of gravel
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

Remarks:

10-12 - added foam to suppress
methane

Water Level Measurement

____ Date ____
____ Date ____
____ Date ____
____ Date ____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: Stell + Prillon

Well/Boring No.: MW-1

Sheet 3 of 9

By: [Signature] Date: _____

Chk'd: _____ Date: _____

Drilling Contractor: Rail

Driller: Bob Naud

Geologist: Cande / Troner

Drill Rig: Drill Star 100

Drilling Method: SA 444

Sample Spoon I.D.: 3"

Drive Hammer Wt.: _____

Date Started: 9-27-93

Date Completed: 9-27-93

Borehole Completion Depth: 85'

Borehole Diameter: 8"

Ground Surface El.: _____

4' below 85'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
2.0						
-1-						
2.2	2	20-22	0	10-27 39-43		No Recovery 22'
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

Remarks: _____

Water Level Measurement

_____ Date _____

_____ Date _____

_____ Date _____

_____ Date _____



DVIRKA
AND
BARTILUCCI

BORING LOG

Project No.: 1227-2A
Project Name: Stech & Philbin

Well/Boring No.: MW-1
Sheet 4 of 9
By: [Signature] Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R. J. [Signature]
Driller: Bert Nard
Drill Rig: Drill Star 100
Sample Spoon I.D.: 3"
Date Started: 9-27-93

Geologist: Condy Hooper
Drilling Method: HSA 4"14
Drive Hammer Wt.: _____
Date Completed: 9-27-93

Borehole Completion Depth: 88'
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 85'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
3-0						<u>Tan m-c SAND some gravel</u>
-1-						
3-2	<u>3</u>	<u>30-32</u>	<u>20"</u>	<u>12-17</u> <u>28 4/4</u>		
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

32

Remarks:

Water Level Measurement

____ Date _____
____ Date _____
____ Date _____
____ Date _____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: STECK & Philbin

Well/Boring No.: MW-1
Sheet 5 of 9
By: JD Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R & D

Driller: Bob Ward

Drill Rig: Drill Star 100

Sample Spoon I.D.: 3 1/2"

Date Started: 9-27-93

Geologist: Conde Fisher

Drilling Method: # SA 4 1/4"

Drive Hammer Wt.: _____

Date Completed: 9-27-93

Borehole Completion Depth: 85'

Borehole Diameter: 8"

Ground Surface El.: _____

*Bottom of Hole 85'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
40						Orange-Tan F-m SAND
-1-						Little gravel trace silt
42	4"	40-42	13"	10, 18, 30, 36	0/100/0%	
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

Remarks:

Water Level Measurement

____ Date _____
____ Date _____
____ Date _____
____ Date _____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: STECK & Philbin

Well/Boring No.: MW-1
Sheet 1 of 1
By: [Signature] Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R&L
Driller: Bob Nover
Drill Rig: Drill Star 102
Sample Spoon I.D.: 3"
Date Started: 9-27-93
Geologist: Carole Fisher
Drilling Method: HSA 4 1/4
Drive Hammer Wt.: _____
Date Completed: 9-27-93

Borehole Completion Depth: 35'
Borehole Diameter: 3"
Ground Surface El.: _____

Bottom of 35'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
50-					<u>Tip/valve</u>	
-1-						<u>SAME AS ABOVE</u>
						<u>Trace to little silt</u>
52-	<u>5</u>	<u>50-52</u>	<u>20"</u>	<u>17-33-36-45</u>	<u>0/200/30</u>	
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

Remarks:

Added more foam.

Water Level Measurement

_____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: STECK & Philbin

Well/Boring No.: MW-1
Sheet 7 of 8
By: [Signature] Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: RdL
Driller: Bob Naeck Geologist: Conde Tomlinson
Drill Rig: Drill Star 100 Drilling Method: 1 1/2" 4" 1/4"
Sample Spoon I.D.: 3" Drive Hammer Wt.: _____
Date Started: 9-27-93 Date Completed: 9-22-93

Borehole Completion Depth: 98'
Borehole Diameter: 8"
Ground Surface El.: _____
bottom 85'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-						4" seam of laminated SAND and silt
-1-						Then same as Above
-2-	6	60-62	20"	8-17-25-30	diver for	62'
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10-						

Remarks:

Water Level Measurement

Date _____
Date _____
Date _____
Date _____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: STECK & Philbin

Well/Boring No.: MW-1
Sheet 8 of 9
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: Bob Novek

Driller: Bob Novek

Drill Rig: Drill Star 100

Sample Spoon I.D.: 3"

Date Started: 9-27-93

Geologist: Conde / T. D. H. C.

Drilling Method: USA - 4' / 1'

Drive Hammer Wt.: _____

Date Completed: 9-27-93

Borehole Completion Depth: 85'

Borehole Diameter: 8"

Ground Surface El.: _____

bottom of hole 85'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
7-0						
-1-						
7-2	7	70-72	10"	4/14-16	0/24/0	Orange-yellow coarse SAND & gravel Trace silt
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

wet 72'

Remarks:

Water Level Measurement

____ Date _____
____ Date _____
____ Date _____
____ Date _____



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: Steck & Philbin

Well/Boring No.: MW-1
Sheet 8 of 9
By: [Signature] Date: [Blank]
Chk'd: [Blank] Date: [Blank]

Drilling Contractor: R & L

Driller: Bob Nudel

Drill Rig: Drill Star 100

Sample Spoon I.D.: 3"

Date Started: 9-27-93

Geologist: Corde Hatcher

Drilling Method: HSA

Drive Hammer Wt.: [Blank]

Date Completed: 9-27-93

Borehole Completion Depth: 85'

Borehole Diameter: 3"

Ground Surface El.: [Blank]

bottom of hole 85'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
80					removed	
-1-						SAME AS ABOVE
82	8	80-82	15'	6-10- 12-18	0/20/0%	82
-3-						
-4-						
-5-						E.O.B. 85'
-6-						
-7-						
-8-						
-9-						
-10						

Remarks:

Water Level Measurement

Date

Date

Date

Date



DVIRKA
AND
BARTILUCCI

Project No.: 12272A
Project Name: steek & PWB in

Well/Boring No.: MW2
Sheet 3 of 9
By: ea Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: RAH

Driller: Bob Danel

Geologist: Conde / Fisher

Drill Rig: Drill Star 1110

Drilling Method: HSA 4 1/4

Sample Spoon I.D.: 3"

Drive Hammer Wt.: _____

Date Started: 9/22/93

Date Completed: 9/24/93

Borehole Completion Depth: 125'

Borehole Diameter: 8"

Ground Surface El.: _____

bottom of hole 127'

DEPTH (FT.)

SAMPLE NO.

SAMPLING
INTERVAL

RECOVERY/
RQD

BLOWS/6"

HEADSPACE
(PPM)

SAMPLE
DESCRIPTION

0

-1-

-2-

-3-

-4-

-5-

-6-

-7-

-8-

-9-

-10

1

5-7

0

35-37
51-53

10 PPM

NO RECOVERY

7

2

10-12

18-1

14-24
40-32

2 PPM

LT-TAN F-M SAND little gravel
some dark laminations (occas.)

Remarks:

Water Level Measurement

Date

Date

Date

Date



DVIRKA
AND
BARTILUCCI

BORING LOG

Project No.: 1777-2A
Project Name: Stuck & Philbin

Well/Boring No.: MW 2
Sheet 2 of 2
By: [Signature] Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R & R

Driller: Bob Naud

Geologist: Conde P. Straker

Drill Rig: Drill Star 100

Drilling Method: ASA 4 1/4

Sample Spoon I.D.: 3"

Drive Hammer Wt.: _____

Date Started: 9-22-93

Date Completed: 9-24-93

Borehole Completion Depth: 125

Borehole Diameter: 8"

Ground Surface El.: _____

bottom of hole 127'

SAMPLE
DESCRIPTION

DEPTH (FT.)

SAMPLE NO.

SAMPLING
INTERVAL

RECOVERY/
RQD

BLOWS/6"

HEADSPACE
(PPM)

0
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10

3

15-17

24" 26-20
30-32

18 1/2 / 6

SAME AS ABOVE

17

4

20-22

24" 5-19
21-32

13 1/4 / 10

LT TAN white F-C SAND, little
gravel, occasional pebbles.

22

Remarks:

Water Level Measurement

Date

Date

Date

Date

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: STEEL & Philbin

Well/Boring No.: MW-2
Sheet 3 of 8
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R & L

Driller: Bob Noland

Geologist: Conley / Tomlin

Drill Rig: H&D Drill Star 100

Drilling Method: HSA 4 1/4"

Sample Spoon I.D.: 3"

Drive Hammer Wt.: _____

Date Started: 9-22-93

Date Completed: 9-24-93

Borehole Completion Depth: 123'

Borehole Diameter: 8"

Ground Surface El.: _____

bottom of hole 122'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0						
-1						
-2						
-3						
-4						
-5						
-6						<u>TAN to slight orange</u> <u>M-C SAND - little gravel</u>
-7	<u>5</u>	<u>25-27</u>	<u>24</u>	<u>11-10</u> <u>15-23</u>	<u>90/200/3</u>	<u>moist 27</u>
-8						
-9						
-10						<u>SAME AS ABOVE</u>
	<u>6</u>	<u>27-32</u>	<u>24</u>	<u>7-15-</u> <u>18-24</u>	<u>0/0/0</u>	<u>32</u>

Remarks:

* Borehole readings LEL > 50% allowed
to vent but proceeded to clamp
decided to use a foam suppressant to keep methane
a bit - followed by NUS DEC

Water Level Measurement

____ Date _____
____ Date _____
____ Date _____
____ Date _____

BORING LOG



**DVIRKA
AND
BARTILUCCI**

Project No.: 1227-2A
Project Name: STELV & Philbin

Well/Boring No. MW2
Sheet 4 of 8
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: RJH
Driller: Bob Nard
Drill Rig: Drill Star 100
Sample Spoon I.D.: 3"
Date Started: 9-22-93

Geologist: Condi Hasker
Drilling Method: HSA-4 1/4
Drive Hammer Wt.: _____
Date Completed: 9/24/93

Borehole Completion Depth: 125'
Borehole Diameter: 8"
Ground Surface El.: _____
bottom of hole 127'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
40					<i>Tribraker</i>	
-1-						<u>TAN M-C SAND, Little to some gravel</u>
42	7	40-42	12	15-28 30-35	50/15/10	(moist) 42
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-50	8	50-52	20	16-60 75-83		Same As Above

Remarks:

Water Level Measurement

____ Date _____
____ Date _____
____ Date _____
____ Date _____



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: Street of Philadelphia

Well/Boring No.: MW-2
Sheet 5 of 8
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: P & J

Driller: Bob Nunez

Drill Rig: DeWitt 100

Sample Spoon I.D.: 3"

Date Started: 9-22-93

Geologist: Conrad P. Foster

Drilling Method: HSA - 4 1/4"

Drive Hammer Wt.: _____

Date Completed: 9-24-93

Borehole Completion Depth: 123'

Borehole Diameter: 8"

Ground Surface El.: _____

Bottom of hole 123'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
60						
-1-						
62	9	60-62	20	32-60 80-84	sol/s/c	SAME AS ABOVE but little gravel
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10-						
70	10	70-72	20	12-28 28-34	sol/s/c	Orangeish TAN m-c SAND and some gravel
Remarks:						Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____



DVIRKA
AND
BARTILUCCI

BORING LOG

Project No.: 1227-2A
Project Name: STICK HILL

Well/Boring No.: MW-2
Sheet 6 of 8
By: JS Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: RDO

Driller: Bob Noe

Drill Rig: Drill Star 100

Sample Spoon I.D.: 3"

Date Started: 9/22/93

Geologist: Conde F. Porter

Drilling Method: HSA 4'16"

Drive Hammer Wt.: _____

Date Completed: 9/24/93

Borehole Completion Depth: 125'

Borehole Diameter: 8"

Ground Surface El.: _____

bottom of hole 129'

DEPTH (FT.)

SAMPLE NO.

SAMPLING
INTERVAL

RECOVERY/
RQD

BLOWS/6"

HEADSPACE
(PPM)

SAMPLE
DESCRIPTION

80-

-1-

82-

-3-

-4-

-5-

-6-

-7-

-8-

-9-

90-

12 90-92

20

15-23

38-54

20/30/10

Orangeish TAU F-M SAND
little gravel
to nothing

orangeish TA m-c SAND
little Fine SAND, little gravel
Trace silt.

Remarks:

Water Level Measurement

Date

Date

Date

Date

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.:
Project Name:

12277A
STREK & HILL

Well/Boring No.: MW-2
Sheet 7 of 8
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R & L

Driller: Bob N. N. N.

Drill Rig: Drill Star 100

Sample Spoon I.D.: 3"

Date Started: 9-22-93

Geologist: C. M. T. T. T.

Drilling Method: HSA 4 1/4"

Drive Hammer Wt.: _____

Date Completed: 9-24-93

Borehole Completion Depth: 128'

Borehole Diameter: 8"

Ground Surface El.: _____

bottom of hole 127'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
100						
-1-						Orangeish TAN F-M SAND little gravel trace to little silt
102	13	100-102	27	17-38 41-62	0.18/0	x
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10	14	110-112	20	5-11- 15-17	0.18/0	Orangeish TAN TO Yellowish TAN Fine SAND some silt, trace gravel
						112'
Remarks:						Water Level Measurement
* H ₂ O level at 109ft						_____ Date _____
						_____ Date _____
						_____ Date _____
						_____ Date _____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: Steel & Philbin

Well/Boring No.: MW-2
Sheet 8 of 8
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: REL

Driller: Bob Hunt

Drill Rig: Deil Star 100

Sample Spoon I.D.: 3"

Date Started: 9-22-93

Geologist: Carol FROE

Drilling Method: HSA 4 1/4

Drive Hammer Wt.: _____

Date Completed: 9-24-93

Borehole Completion Depth: 125'

Borehole Diameter: 3"

Ground Surface El.: _____

bottom of hole 127'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0						
-1						
-2						
-3						
-4						
125-						E.O.B. 125'
-6						Same as Above
127-	15	125-127	22	10-23 56-77	0/0/0	
-8						
-9						
-10						

Remarks:

Water Level Measurement

Date

Date

Date

Date

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: Steele & Philbin

Well/Boring No.: MW-3
Sheet 1 of 13
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R&K
Driller: Bob Nudel
Drill Rig: Drill Star 100
Sample Spoon I.D.: 3"
Date Started: 9-28-93

Geologist: Cencho P. Flores
Drilling Method: HSA
Drive Hammer Wt.: _____
Date Completed: 9-29-93

Borehole Completion Depth: 133
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 133

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0		0-10'	cuttings		T.O. 100% HSA	
-1						Cuttings - yellowish-tan F.M. SAND
-2						Little to trace gravel
-3						
-4						
-5						
-6						
-7						
-8						
-9						
-10						

Remarks:

Water Level Measurement

____ Date _____
____ Date _____
____ Date _____
____ Date _____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: Steele & Philbin

Well/Boring No.: MW-3
Sheet 2 of 15
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R & L
Driller: Bob Nouch
Drill Rig: Drill Bit 100
Sample Spoon I.D.: 3"
Date Started: 9-28-93

Geologist: Conde / TOUler
Drilling Method: HSA 4 1/4
Drive Hammer Wt.: _____
Date Completed: 9-29-93

Borehole Completion Depth: 133
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 133

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0						
-1						
-2	1	10-12	20	15-12 12-15	0/0/0	SAME AS Above w/ a 3" band of orange tan m. sand, little silt.
-3						
-4						
-5						
-6						
-7						
-8						
-9						
-10						

12'

Remarks:

Water Level Measurement

____ Date _____
____ Date _____
____ Date _____
____ Date _____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227
Project Name: STEEL & PHILBIN

Well/Boring No. M13
Sheet 3 of 13
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: Let's
Driller: Bob Navel
Drill Rig: Drill Star 100
Sample Spoon I.D.: 3"
Date Started: 9-28-93

Geologist: Conde Franks
Drilling Method: HSA
Drive Hammer Wt.: _____
Date Completed: 9-29-93

Borehole Completion Depth: 133
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 133

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
20-						
-1-						
22-	2	20-22	24	16-19-22	06/8	LT. Tan F-M SAND, Trace gravel
						22'
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

Remarks:

Water Level Measurement

Date _____
Date _____
Date _____
Date _____



DVIRKA
AND
BARTILUCCI

BORING LOG

Project No.: 1227 2-A
Project Name: Stech & Ph. 16.7

Well/Boring No. M13
Sheet 4 of 13
By: [Signature] Date:
Chk'd: Date:

Drilling Contractor: R & H
Driller: Self
Drill Rig: Drill Star 100
Sample Spoon I.D.: 3"
Date Started: 9-28-93
Geologist: Conde & Frost
Drilling Method: HSA
Drive Hammer Wt.:
Date Completed: 9-29-93

Borehole Completion Depth: 133
Borehole Diameter: 8"
Ground Surface El.:

bottom of hole 133

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
30					<u>Tip of rock</u>	
-1-						<u>Same as above</u>
32	3	30-32	24"	10-19- 24-30	0.5/0.8	
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						
Remarks:						Water Level Measurement <u> </u> Date <u> </u> <u> </u> Date <u> </u> <u> </u> Date <u> </u> <u> </u> Date <u> </u>

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227
Project Name: Stack & Philbin

Well/Boring No. W13
Sheet 4 of 13
By: [Signature] Date:
Chk'd: Date:

Drilling Contractor: RAH
Driller: Bob Noddy
Drill Rig: Drill Star 100
Sample Spoon I.D.: 3"
Date Started: 9-28-93
Geologist: Conde [Signature]
Drilling Method: HSA 4 1/4
Drive Hammer Wt.:
Date Completed: 9-29-93

Borehole Completion Depth: 133
Borehole Diameter: 8"
Ground Surface El.:

Bottom of hole 133

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-					<u>TID / GVA / GVA</u>	
-1-						<u>TAN FCSAUD, Trace Fine gravel</u>
-2-	<u>4</u>	<u>40-42</u>	<u>20</u>	<u>8-20</u> <u>30-49</u>	<u>0/0/0</u>	<u>42'</u>
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

Remarks:

Water Level Measurement

____ Date ____
____ Date ____
____ Date ____
____ Date ____



DVIRKA
AND
BARTILUCCI

BORING LOG

Project No.: 1227
Project Name: STEEL & Philbin

Well/Boring No.: MWB
Sheet 10 of 15
By: [Signature] Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: RDX
Driller: Bob Natch
Drill Rig: Drill Star 190
Sample Spoon I.D.: 3
Date Started: 9-29-93

Geologist: Carol P. Hall
Drilling Method: HSA 4 1/4
Drive Hammer Wt.: _____
Date Completed: 9-29-93

Borehole Completion Depth: 133
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 133

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
5.0						<u>Same as above</u>
-1.						
52.	<u>5</u>	<u>50-2</u>	<u>20</u>	<u>13-21</u> <u>29-63</u>		<u>52</u>
-3.						
-4.						
-5.						
-6.						
-7.						
-8.						
-9.						
-10.						

Remarks:

Water Level Measurement

____ Date _____
____ Date _____
____ Date _____
____ Date _____



DVIRKA
AND
BARTILUCCI

DURING LOG

Project No.: 1227
Project Name: Steck & Philbin

Well/Boring No. MW-3
Sheet 7 of 13
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R & J
Driller: Bob Davis
Drill Rig: Drill Sta. 100
Sample Spoon I.D.: 3"
Date Started: 9-28-53

Geologist: Charles Hook
Drilling Method: 45' 40'
Drive Hammer Wt.: _____
Date Completed: 9-29-53

Borehole Completion Depth: 133
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 133

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0						
-1						
-2	6	60-62	22	14-22 30-34	0.06%	TAN M-C SAND, some fine gravel
-3						
-4						
-5						
-6						
-7						
-8						
-9						
-10						

62

Remarks:

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____



DVIRKA
AND
BARTILUCCI

BORING LOG

Project No.: 1227-2A
Project Name: SECLC & Philbin

Well/Boring No. MW-3
Sheet 8 of 13
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: Legh
Driller: Bob Nard
Drill Rig: Drillstar 100
Sample Spoon I.D.: 3
Date Started: 9-29-93

Geologist: Carol Grant
Drilling Method: HSA 4 1/4
Drive Hammer Wt.: _____
Date Completed: 9-29-93

Borehole Completion Depth: 133
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 133

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
70						
-1-						
72	7	7072-24"	10-15- 42-32	0/0/0		TAN F.M SAND, Trace gravel
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

Remarks:

Water Level Measurement

____ Date _____
____ Date _____
____ Date _____
____ Date _____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227
Project Name: Steele & Philbin

Well/Boring No.: MW-3
Sheet 9 of 12
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: h d s
Driller: Bob David Geologist: Cathy Hooper
Drill Rig: Drill Star 150 Drilling Method: HS4 4 1/4
Sample Spoon I.D.: 3" Drive Hammer Wt.: _____
Date Started: 9-28-93 Date Completed: 9-29-93

Borehole Completion Depth: 133'
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 133'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
80					<u>Tip Over</u>	
-1-						<u>Coarse SAND, some F-m gravel</u>
82	8	80-82	20	17-30 50-70	0/0/0	
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10-						

82'

Remarks:

Water Level Measurement

____ Date _____
____ Date _____
____ Date _____
____ Date _____

BOILING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227
Project Name: STEEL & PH. 16in

Well/Boring No. MH-3
Sheet 10 of 12
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R & S
Driller: Bob Niles
Drill Rig: Drill Star 100
Sample Spoon I.D.: 3"
Date Started: 9-28-93

Geologist: Carol Apple
Drilling Method: HSA 11/4
Drive Hammer Wt.: _____
Date Completed: 9-29-93

Borehole Completion Depth: 133'
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 133'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
90					<u>Tipless/ct</u>	
-1-						<u>orange-yellowish tan & SAND</u> <u>some to little gravel Trace (-) silt.</u>
92	9	90-92	22	14.57- 50-73	0/0/0	92
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10-						

Remarks:

Water Level Measurement

Date _____
Date _____
Date _____
Date _____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227
Project Name: Steck & Philbin

Well/Boring No.: MW-3
Sheet 1/ of 13
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R & L
Driller: Bob Nover
Drill Rig: Drill Star 100
Sample Spoon I.D.: 3"
Date Started: 9-28-93

Geologist: Carol D. Parker
Drilling Method: HSA 4114
Drive Hammer Wt.: _____
Date Completed: 9-29-93

Borehole Completion Depth: 133
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 133'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
100-						
-1-						<u>SAME AS ABOVE - some dark reddish brown rust spots</u>
112-	<u>10</u>	<u>100-112 25'</u>		<u>12-30 60/10/10</u>		<u>(DAMP) 112</u>
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

Remarks:

Water Level Measurement

____ Date _____
____ Date _____
____ Date _____
____ Date _____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227
Project Name: Steel & Philbin

Well/Boring No.: MW-3
Sheet 12 of 13
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: P & R

Driller: Bolt Naud

Drill Rig: Drill Star 110

Sample Spoon I.D.: 3"

Date Started: 9-28-93

Geologist: Cande Webster

Drilling Method: HSA 4" H

Drive Hammer Wt.: _____

Date Completed: 9-29-93

Borehole Completion Depth: 133

Borehole Diameter: 3"

Ground Surface El.: _____

bottom of hole 133'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
120					<u>Tip 120-121</u>	
-1-						<u>Yellowish orange-tan F-SAND, some silt little to some to little gravel</u>
122	11	120-122	15	<u>8-22-35-28</u>	<u>0/0/0</u>	<u>WET 122'</u>
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

Remarks:

Water Level Measurement

Date

Date

Date

Date

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: STECK & Philbin

Well/Boring No.: MW-3
Sheet 13 of 13
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: RTH

Driller: Bob Navel

Drill Rig: Drill Star 100

Sample Spoon I.D.: 3"

Date Started: 9-28-93

Geologist: Conde / Texner

Drilling Method: HSA 4 1/4

Drive Hammer Wt.: _____

Date Completed: 9-29-93

Borehole Completion Depth: 133

Borehole Diameter: 8"

Ground Surface El.: _____

bottom of hole 133

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0						
-1						Yellowish TAN F.M. SAND, 1.4/1.6 - some silt Tr gravel occa. pebbles *
-2	12	130-132	16"	10-24-54	0/0/0	Wet 132'
-3						E.O.B. 133'
-4						
-5						
-6						
-7						
-8						
-9						
-10						

Remarks: *

Geotechnical sample obtained.

Water Level Measurement

_____ Date _____

_____ Date _____

_____ Date _____

_____ Date _____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227
Project Name: Steel & Philbin

Well/Boring No.: MW 4
Sheet 1 of 7
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: PAK

Driller: Bob Ward

Geologist: Conrad Tooke

Drill Rig: Drill Star 100

Drilling Method: HSA 4 1/2

Sample Spoon I.D.: 3"

Drive Hammer Wt.: _____

Date Started: 9-20-93

Date Completed: 9-21-93

Borehole Completion Depth: 75'

Borehole Diameter: 8"

Ground Surface El.: _____

bottom of hole 75'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM) <i>TIP/VALVE</i>	SAMPLE DESCRIPTION
-0						
-1						
-2						
-3						
-4						
-5						
-6	1	5-7	24"	10-12 19-26	10/0/0	LT Tan - clear white RTZ m-c SAND Some rounded gravel Trace - silt - moist.
-7						7"
-8						
-9						
-10	2	10-12	24"	21-13- 13-16	0/0/0	Same AS Above
Remarks:						Dry
Water Level Measurement						_____ Date _____
						_____ Date _____
						_____ Date _____
						_____ Date _____

BORING LOG



**DVIRKA
AND
BARTILUCCI**

Project No.: 1227
Project Name: STEEL & PHILBIN

Well/Boring No.: MW4
Sheet 2 of 7
By: [Signature] Date:
Chk'd: Date:

Drilling Contractor: Rd L

Driller: Bob Womel

Drill Rig: Don Star 100

Sample Spoon I.D.: 31

Date Started: 9-20-93

Geologist: Cynthia L. Towner

Drilling Method: ISA

Drive Hammer Wt.:

Date Completed: 9-21-93

Borehole Completion Depth: 75'

Borehole Diameter: 8"

Ground Surface El.:

bottom of hole 75'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0						
-1						
-2						
-3						
-4						
-5						
-6	3	15-17	24"	7-9-14-24		LT-TAN to White F-m quartz SAND little to trace rnd. gravel, occ. pebble.
-7					4/10/0	
-8						
-9						
-20	4	20-22	24	6-9-15-19	8/10/0	SAME AS ABOVE - NO pebb.

Remarks:

Water Level Measurement

Date

Date

Date

Date

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: Steck & Philbin

Well/Boring No.: 114
Sheet 3 of 4
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: RGR
Driller: Bob Navel
Drill Rig: Drill Star 100
Sample Spoon I.D.: 3"
Date Started: 9/20/93

Geologist: Carol Proter
Drilling Method: HSA 4 1/2"
Drive Hammer Wt.: _____
Date Completed: 9/21/93

Borehole Completion Depth: 75'
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 75'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0						
-1						
-2						
-3						
-4						
-5						
-6						M-C SAME AS ABOVE
27	5	25-27	20"	5-17-38-100	9/20/93	dry 27'
-8						
-9						
30	6	30-32	20"	38-60 32-34	9/20/93	Orange m-F SAND some zones stained BK brown, Trace silt moist 32'
Remarks:						Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227
Project Name: Steel & Philbin

Well/Boring No. W4
Sheet 4 of 1
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: NR

Driller: Bob Naveh
Drill Rig: Drill Star 100
Sample Spoon I.D.: 3"
Date Started: 9/20/93

Geologist: Conde T. Tschel
Drilling Method: HSA 9 1/4"
Drive Hammer Wt.: _____
Date Completed: 9/21/93

Borehole Completion Depth: 75'
Borehole Diameter: 8"
Ground Surface El.: _____

Bottom of hole 75'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-						
-1-						
-2-						
-3-						
-4-						
35-						
-6-						SAME AS ABOVE
37-	7	35-37	20"	13-19-36	3 1/2 / 8	dry 20"
-8-						
-9-						
40-						SAME AS ABOVE
	8	40-42	24"	8-13-19-52	0 1/6 / 8	dry 42'
Remarks:						Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: STECKA Ph. 16in

Well/Boring No. MH 4
Sheet 5 of 7
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R.A.R.
Driller: Bob Unruh
Drill Rig: Drill Star 160
Sample Spoon I.D.: 3 3/8"
Date Started: 9/20/93

Geologist: Cornel Tooner
Drilling Method: HSA 4 1/4"
Drive Hammer Wt.: _____
Date Completed: 9/21/93

Borehole Completion Depth: 75'
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 75'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-						
-1-						
-2-						
-3-						
-4-						
45-						
-6-						Orangesh-lgt tan F SAND Trace gravel
47-	9	45-47	24"	16-32- 20-62	0/0/0	dry 47
-8-						
-9-						
50						LT-TAN (slightly-orange) F-M SAND
	10	50-52	24"	12-20 29-46	0/0/0	Reddish brown bonding occasionally trace silt.

Remarks: _____

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

DRILLING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: Stock & Philbin

Well/Boring No. NW1
Sheet 6 of 2
By: _____ Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R. J. [Signature]
Driller: Bob Novek
Drill Rig: Drill Star 100
Sample Spoon I.D.: 3"
Date Started: 9/20/93

Geologist: Carol H. [Signature]
Drilling Method: USA 4 1/2"
Drive Hammer Wt.: _____
Date Completed: 9/21/93

Borehole Completion Depth: 25
Borehole Diameter: 8"
Ground Surface El.: _____

bottom of hole 25'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0						
-1						
-2						
-3						
-4						
55						
-6						<u>LT-Tan M-C SAND</u>
57	<u>11</u>	<u>55-57</u>	<u>24</u>	<u>19-50</u> <u>36-40</u>	<u>0/0/0</u>	<u>moist at bottom of spoon 57'</u>
-8						
-9						
60						
	<u>12</u>	<u>60-62</u>	<u>24</u>	<u>8-17</u> <u>40-70</u>	<u>0/0/0</u>	<u>Same as above - orange in color</u> <u>wet</u> <u>62'</u>

Remarks:

Water Level Measurement

____ Date _____
____ Date _____
____ Date _____
____ Date _____

BORING LOG



DVIRKA
AND
BARTILUCCI

Project No.: 1227-2A
Project Name: Steele & Phillips

Well/Boring No.: MW
Sheet 7 of 7
By: 7/82 Date: _____
Chk'd: _____ Date: _____

Drilling Contractor: R & R
Driller: Bob Nudel Geologist: Conley / Tooker
Drill Rig: Beill Station Drilling Method: ASA 4'14
Sample Spoon I.D.: 3" Drive Hammer Wt.: _____
Date Started: 9/20/93 Date Completed: 9/21/93

Borehole Completion Depth: 95'
Borehole Diameter: 3"
Ground Surface El.: _____

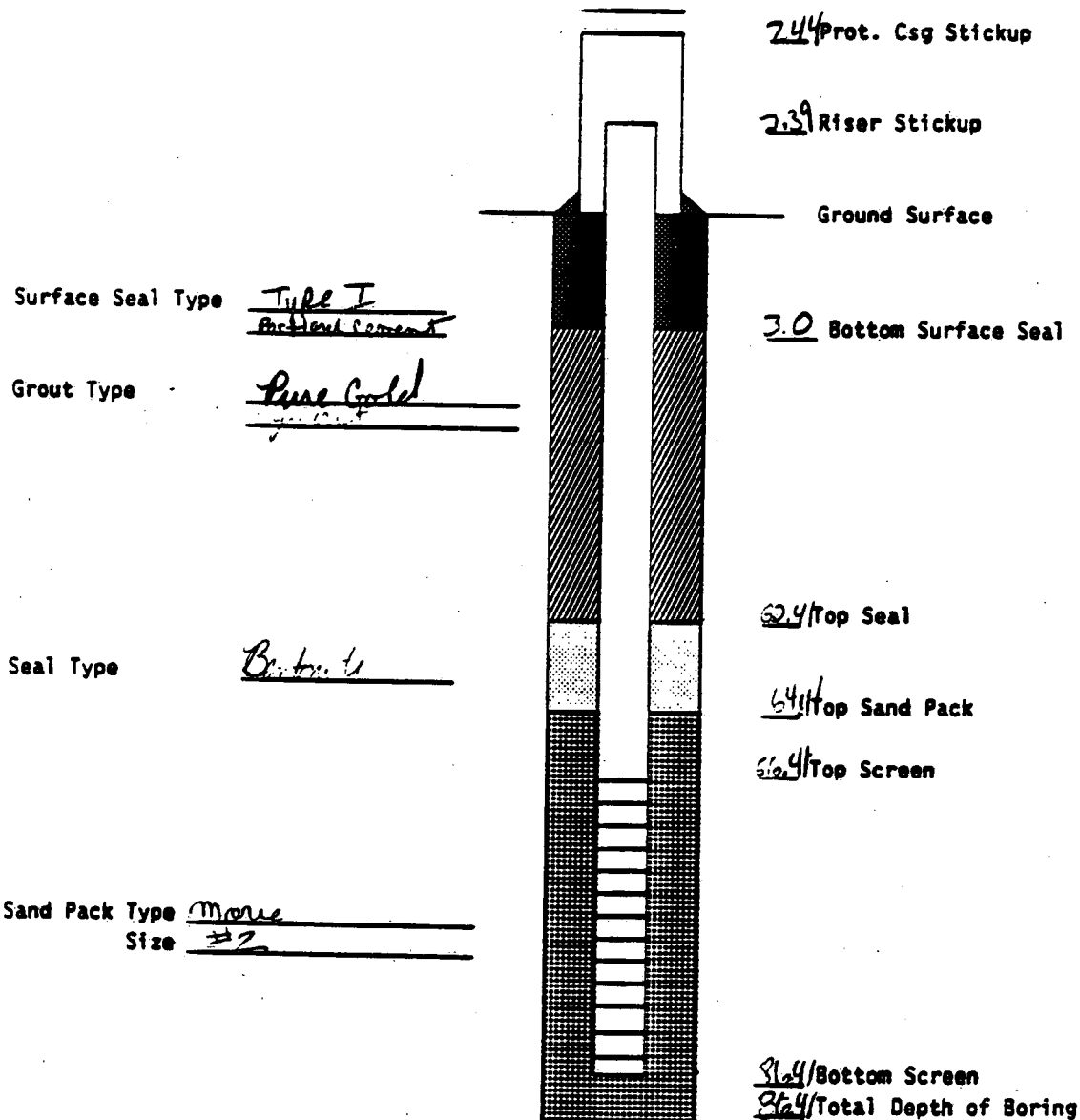
bottom of hole 95'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0						
-1						
-2						
-3						
-4						
-5						
-6						Orangeish yellowish Tan F-m SAND trace gravel little silt
-6.7	13	65-67	24	35-67 88-82	0/0/0	Wet 67'
-8						
-9						
-10						
-10.7	14	70-72	24	4-12- 21-57	0/0/0	Yellowish Tan F-C SAND some to little gravel little to trace silt Wet 72'
Remarks: E.O.B 75'						Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____

WELL CONSTRUCTION LOG

SITE Steck & Philbin JOB NO. 1227 WELL NO. MW-1
TOTAL DEPTH 88.8 TOC SURFACE ELEV. 101.71* TOP RISER ELEV. 104.10*
WATER LEVELS (DEPTH, DATE, TIME) _____ DATE INSTALLED 9-27-93
RISER DIA 2" MATERIAL PVC LENGTH 68.8
SCREEN DIA 2" MATERIAL PVC LENGTH 20 FT SLOT SIZE .010
PROT CSG DIA 4 MATERIAL STEEL LENGTH 5 FT

SCHEMATIC

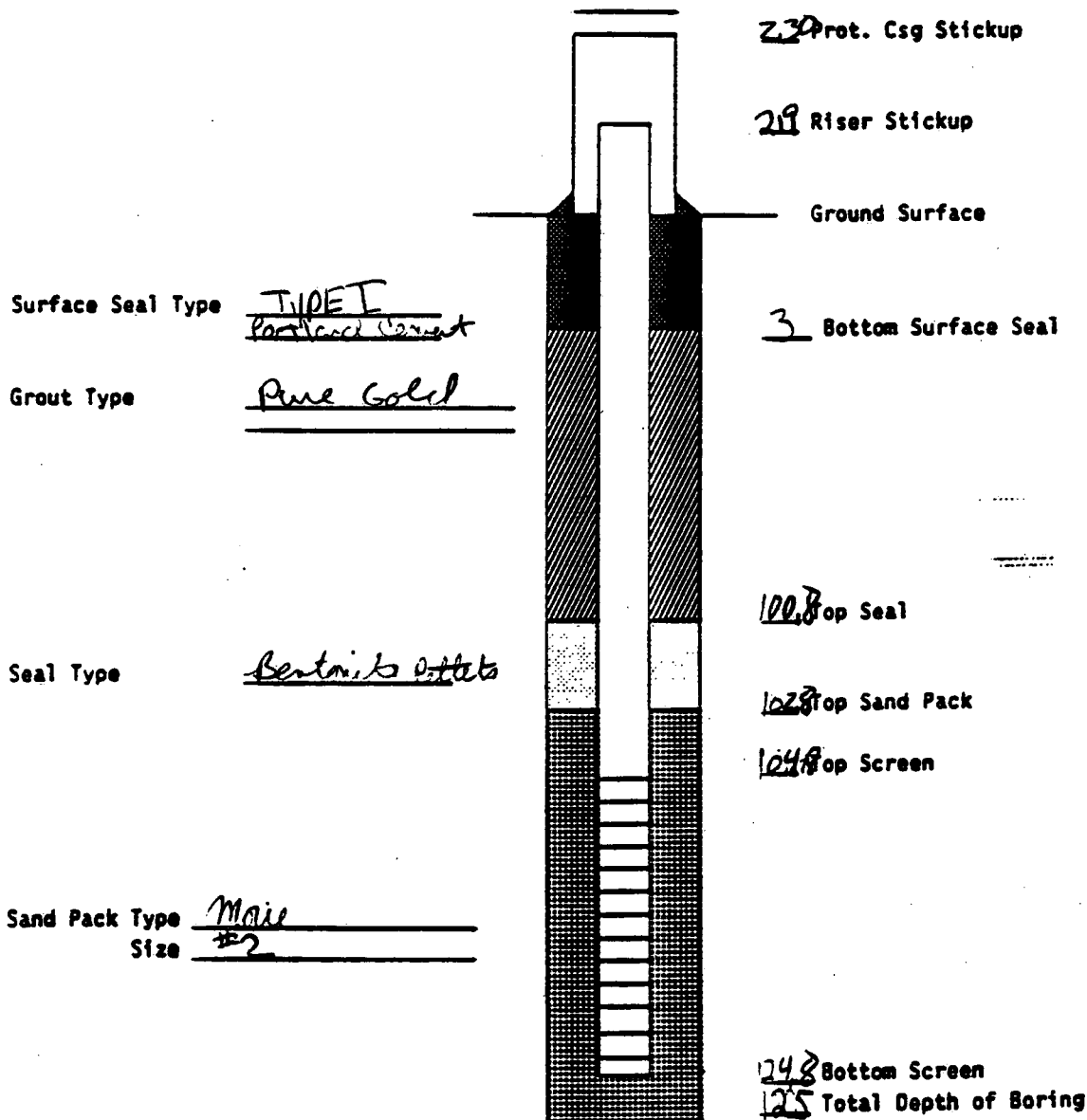


* Assumed Datum

WELL CONSTRUCTION LOG

SITE S. Teck & Philbin JOB NO. 1227 WELL NO. MW-2
TOTAL DEPTH 127 SURFACE ELEV. 139.88* TOP RISER ELEV. 141.99*
WATER LEVELS (DEPTH, DATE, TIME) _____ DATE INSTALLED 9/24/93
RISER DIA 2" MATERIAL PVC LENGTH 11.7'
SCREEN DIA 2" MATERIAL PVC LENGTH 20 SLOT SIZE .010
PROT CSG DIA 4" MATERIAL Steel LENGTH 5'

SCHEMATIC



* Assumed Datum



Dvirka
and
Bertucci
CONSULTING ENGINEERS

WELL CONSTRUCTION LOG

SITE Steak & Philbin

JOB NO. 1222-21 WELL NO. MW-3

TOTAL DEPTH 13.61

SURFACE ELEV. 151.43*

TOP RISER ELEV. 153.52*

WATER LEVELS (DEPTH, DATE, TIME) _____

DATE INSTALLED 9-29-93

RISER
SCREEN
PROT CSG

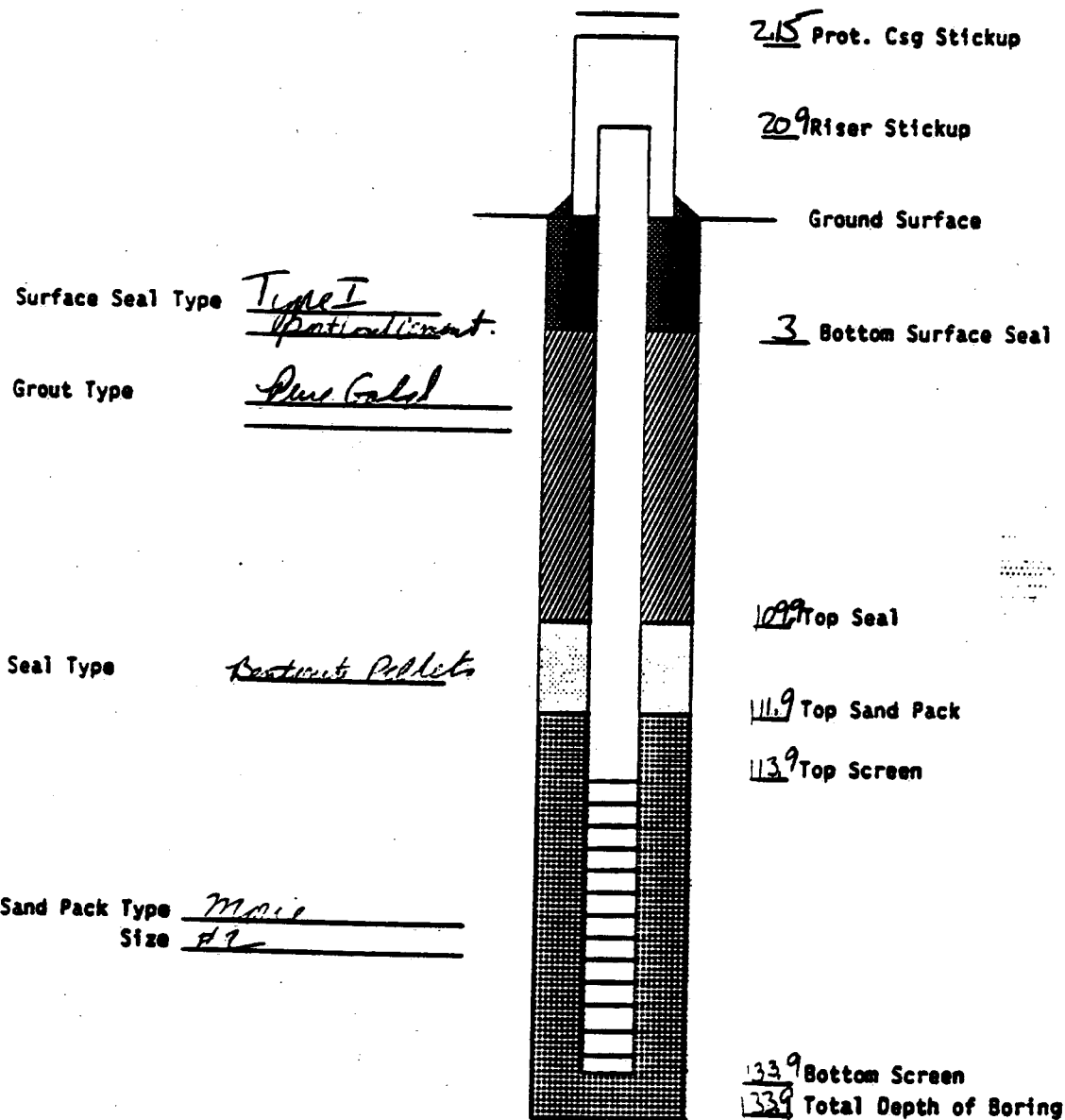
DIA 2"
DIA 2"
DIA 4"

MATERIAL PVC
MATERIAL PVC
MATERIAL Steel

LENGTH 11.6
LENGTH 20'
LENGTH 5'

SLOT SIZE .010

SCHEMATIC

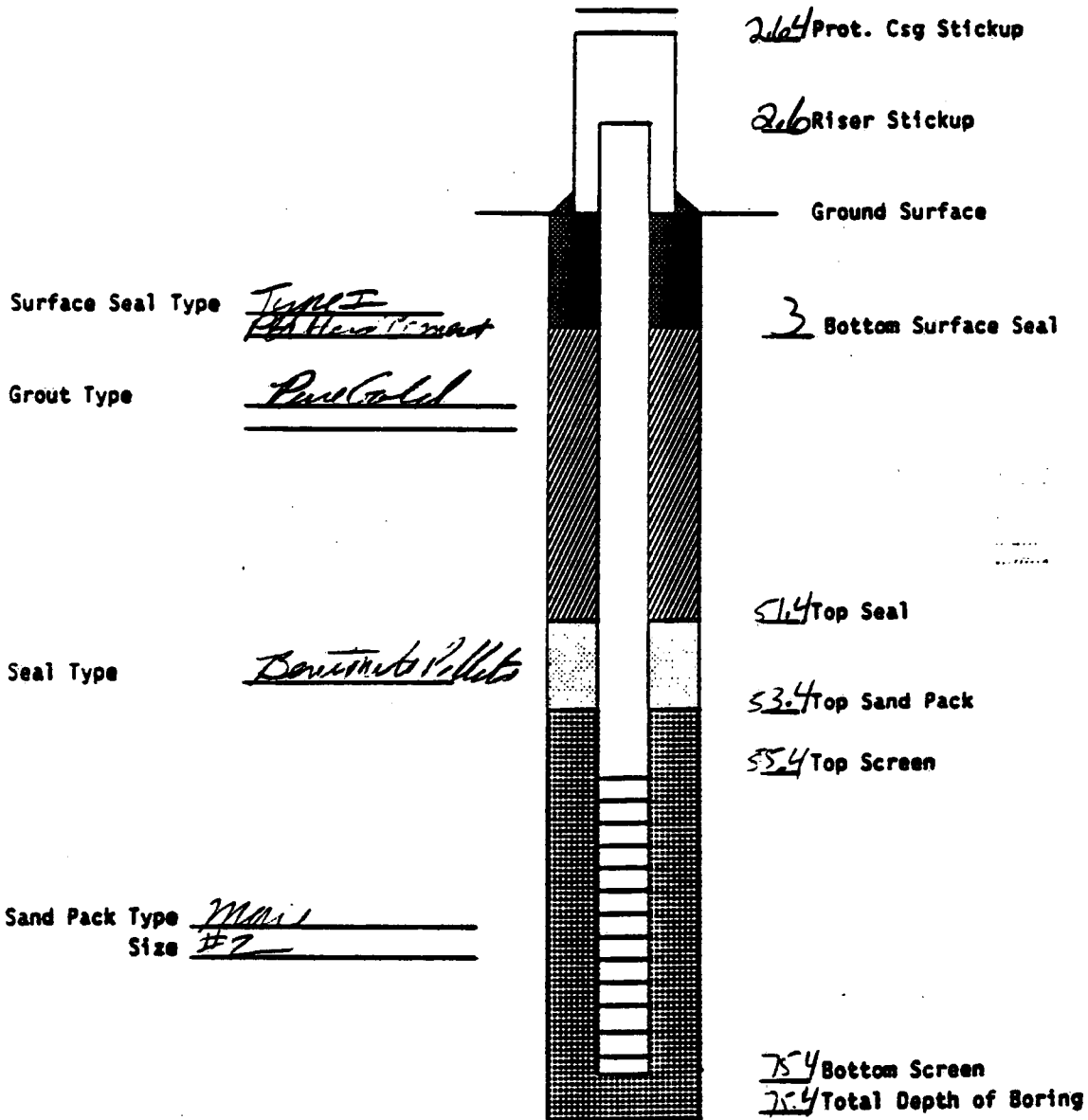


* Assumed Datum

WELL CONSTRUCTION LOG

SITE Steck & Philbe JOB NO. 1227 WELL NO. MW-4
 TOTAL DEPTH 78 SURFACE ELEV. 96.32* TOP RISER ELEV. 98.92*
 WATER LEVELS (DEPTH, DATE, TIME) _____ DATE INSTALLED 9-20-93
 RISER DIA 7" MATERIAL PVC LENGTH 58
 SCREEN DIA 7" MATERIAL PVC LENGTH 20' SLOT SIZE 0.10
 PROT CSG DIA 4" MATERIAL STEEL LENGTH 5'

SCHEMATIC



* Assumed Datum

APPENDIX D

GRAIN SIZE ANALYSES

**GEOTECHNICAL TESTING REPORT
STECK & PHILBIN C & D LANDFILL
NYSDEC PRELIMINARY SITE ASSESSMENT**

**FOR:
DVIRKA & BARTILUCCI
SYOSSET, NEW YORK**

**JOB NO. G084.001C
NOVEMBER, 1993**

November 30, 1993

Ms. Robin Petrella
DVIRKA & BARTILUCCI ENGINEERS
6800 Jericho Turnpike
Syosset, New York 11791

**SUBJECT: GEOTECHNICAL TESTING, STECK & PHILBIN C&D LANDFILL
NYSDEC PRELIMINARY SITE ASSESSMENT
D&B PROJECT NO. 1225-1A**

Dear Ms. Petrella:

Transmitted herewith are the results of geotechnical testing performed on four(4) soil samples received at our laboratory in Middleport, New York on October 6, 1993.

The samples have been catalogued and identified as follows:

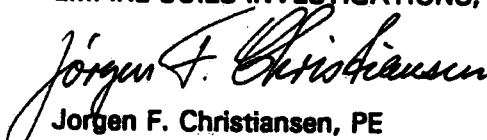
<u>LAB NO.</u>	<u>SAMPLE ID.</u>	<u>SAMPLE DEPTH(FT)</u>
1842.007	SP-MW1	80.0 - 82.0
1842.008	SP-MW2	110.0 - 112.0
1842.009	SP-MW3	130.0 - 132.0
1842.010	SP-MW4	65.0 - 67.0

As requested, we have performed Grain Size Distribution Analysis(ASTM D422) on the samples. The Grain Size Distribution test reports are attached.

Should you have any questions, or in case we may be of further service, do not hesitate to contact the undersigned at 716-735-3400.

Respectfully Submitted,

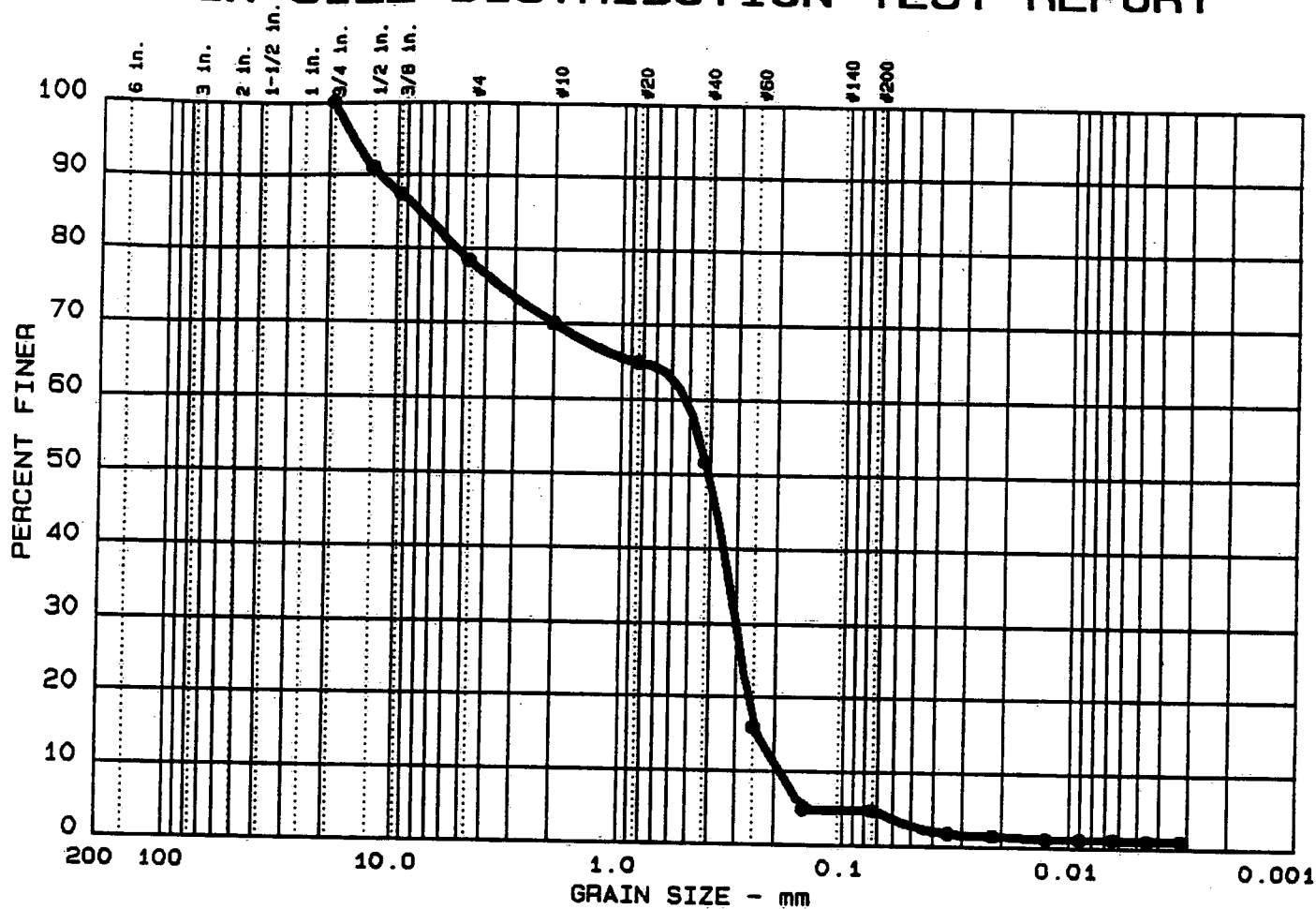
EMPIRE SOILS INVESTIGATIONS, INC.


Jorgen F. Christiansen, PE
Director, Geotechnical Laboratory

JFC/rm

Enc.

GRAIN SIZE DISTRIBUTION TEST REPORT



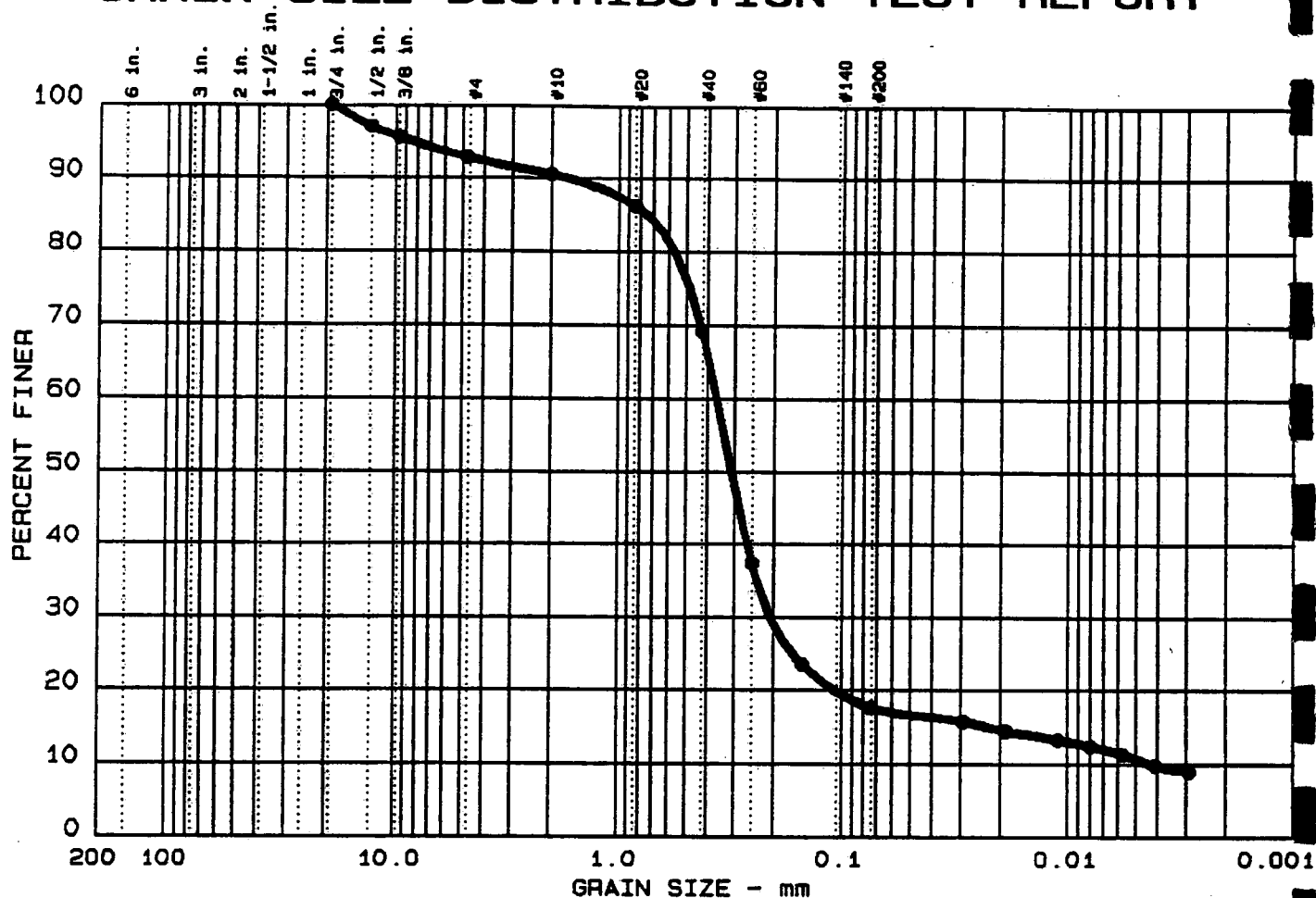
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 7	0.0	21.6	73.6	3.8	1.0

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
●		7.76	0.52	0.41	0.302	0.2396	0.1881	0.94	2.7

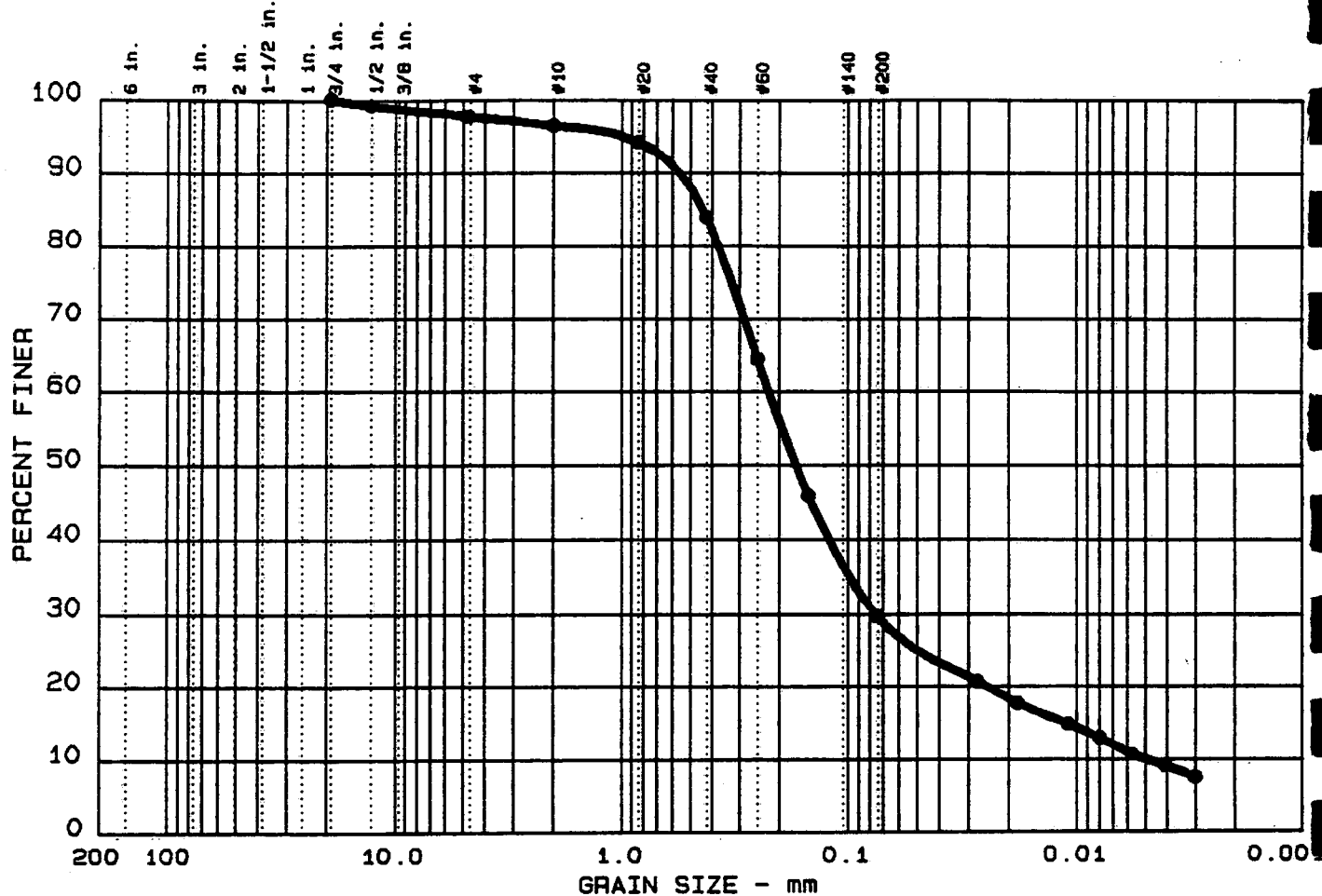
MATERIAL DESCRIPTION	USCS	AASHTO
● CREAM SAND, Some Gravel, trace silt & clay		

Project No.: G084.001C Project: STECK & PHILBIN C & D LANDFILL ● Location: SP-MW1 / 80' - 82' Date: NOVEMBER 16, 1993	Remarks: CLIENT: DVIRKA & BARTILUCCI LAB NO. 1842.007 Figure No. 1
GRAIN SIZE DISTRIBUTION TEST REPORT EMPIRE SOILS INVESTIGATIONS, INC	

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 10	0.0	2.4	68.0	19.6	10.0

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
●		0.44	0.22	0.17	0.076	0.0113	0.0049	5.19	45.2

MATERIAL DESCRIPTION	USCS	AASHTO
● CREAM SAND, Little Silt, trace clay & gravel		

Project No.: G084.001C
 Project: STECK & PHILBIN C & D LANDFILL
 ● Location: SP-MW4 / 65' - 67'

Date: NOVEMBER 16, 1993

Remarks:
 CLIENT: DVIRKA &
 BARTILUCCI

LAB NO. 1842.010

GRAIN SIZE DISTRIBUTION TEST REPORT
EMPIRE SOILS INVESTIGATIONS, INC

Figure No. 1

APPENDIX E

SURVEY DATA

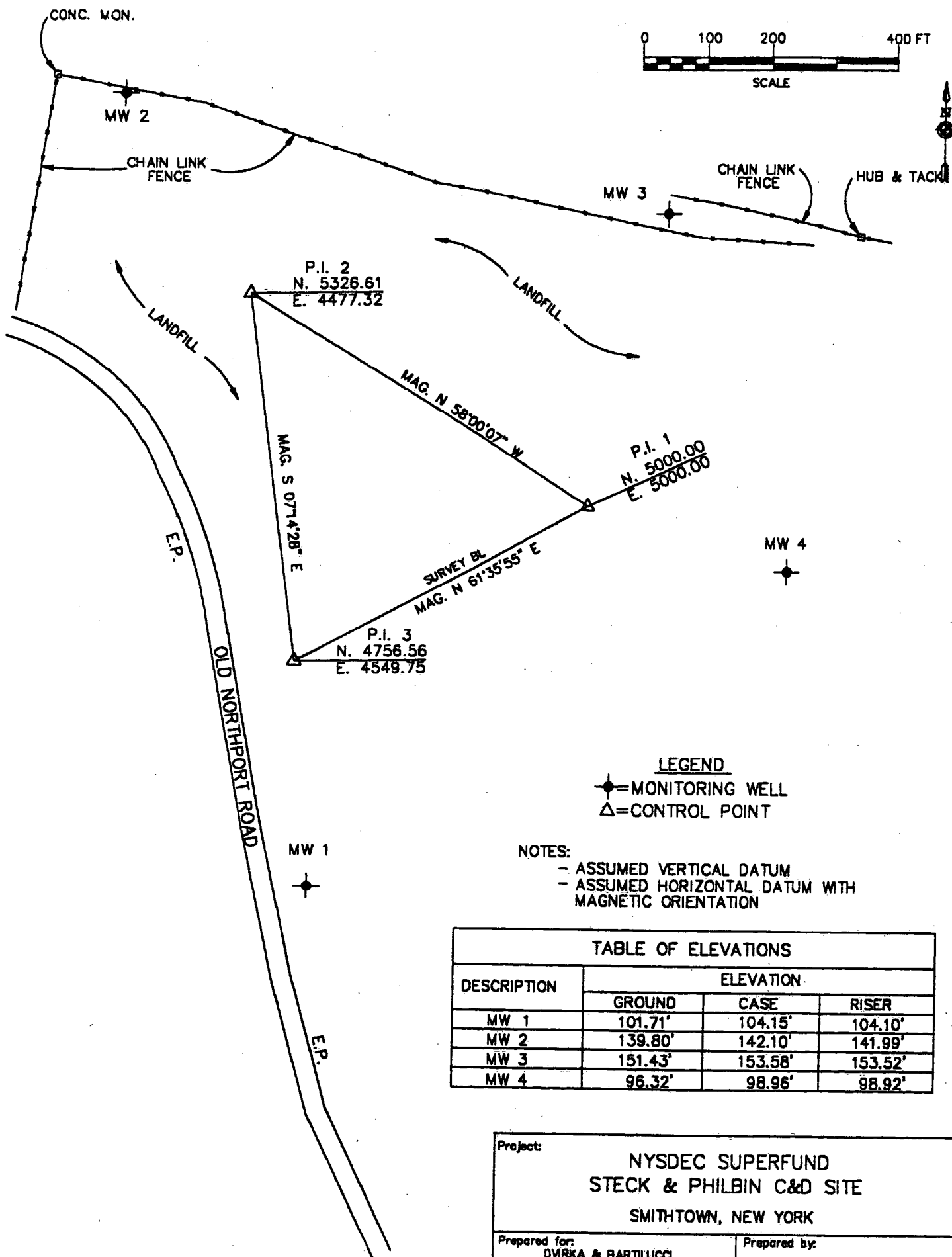


TABLE OF ELEVATIONS			
DESCRIPTION	ELEVATION		
	GROUND	CASE	RISER
MW 1	101.71'	104.15'	104.10'
MW 2	139.80'	142.10'	141.99'
MW 3	151.43'	153.58'	153.52'
MW 4	96.32'	98.96'	98.92'

Project:		
NYSDEC SUPERFUND STECK & PHILBIN C&D SITE SMITHTOWN, NEW YORK		
Prepared for:		Prepared by:
DMRKA & BARTILUCCI 6800 JERICHO TURNPIKE SYOSSET, NY 11791		OM P. POPLI, P.E., L.S., P.C. 44 Saginaw Drive Rochester, New York 14623 Tel. No. 716-442-6940
DATE	SCALE	
11/93	1"=200'	

1.	5000.000000.	5000.000000.	0.000000.CTL 1
2.	5326.605900.	4477.321300.	0.000000.CTL 2
3.	4756.560660.	4549.750350.	0.000000.CTL 3
100.	5367.967918.	4130.448998.	0.000000.CLF
101.	5530.358398.	4156.959519.	0.000000.CLF
102.	5663.645760.	4178.906329.	0.000000.4X4 CONC. MON.
103.	5635.344526.	4281.893350.	0.000000.MW-2
104.	5633.338748.	4334.918961.	0.000000.CLF
105.	5620.731118.	4402.121888.	0.000000.CLF
106.	5499.699982.	4755.156302.	0.000000.CLF
107.	5485.454597.	4837.536264.	0.000000.CLF
108.	3855.927207.	4704.188337.	0.000000.D.H. IN CURB
109.	4405.564859.	4571.880972.	0.000000.MW-1
110.	3834.714306.	4694.180903.	0.000000.CL N.PORT RD.@PL
111.	4057.004414.	4601.381707.	0.000000.NAIL P.T. CURB
112.	4053.231979.	4590.276660.	0.000000.CL N.PORT RD
113.	4257.862197.	4535.989816.	0.000000.CL N.PORT RD
114.	4508.552254.	4483.966375.	0.000000.CL N.PORT RD
115.	4792.558801.	4433.499048.	0.000000.CL N.PORT RD
116.	4935.132865.	4418.034084.	0.000000.D.H. IN CURB
117.	5041.239911.	4355.935305.	0.000000.CL N.PORT RD
118.	5090.625040.	4352.019049.	0.000000.D.H. IN CURB
119.	5182.873478.	4287.349877.	0.000000.D.H. IN CURB
120.	5229.203861.	4233.369848.	0.000000.D.H. IN CURB
121.	5239.009459.	4218.468556.	0.000000.D.H. IN CURB
122.	5286.668455.	4115.973718.	0.000000.D.H. IN CURB
123.	5270.174283.	4109.305575.	0.000000.CL N.PORT RD
124.	5295.726221.	4118.809192.	0.000000.CLF COR.
125.	4900.843864.	5309.157268.	0.000000.MW-4
126.	5454.618636.	5118.780519.	0.000000.MW-3
127.	5483.579092.	5120.922113.	0.000000.CLF
128.	5430.159984.	5110.880899.	0.000000.CLF
129.	5472.333936.	5181.415672.	0.000000.CLF
130.	5417.333063.	5174.069123.	0.000000.CLF
131.	5407.574877.	5345.741899.	0.000000.CLF
132.	5435.239097.	5363.240887.	0.000000.CLF
133.	5421.327563.	5421.954928.	0.000000.HUB&TACK
134.	5412.362210.	5471.191725.	0.000000.CLF

STECK & PHILBIN
C&P SITE

11/10/23

LEVELS

5.71	105.71		100.00
		4.00	101.71
		1.56	102.15
		1.61	104.10
6.36	110.46		
		0.33	110.07
8.63	118.70		
		1.23	117.47
5.90	127.37		
		0.68	127.29
13.84	139.63		
		1.02	138.61
6.70	145.31		
		5.51	139.80
		3.21	142.10
		3.32	141.29
3.65	145.64		
		6.26	139.38
9.37	148.75		
		8.93	139.82
14.91	154.73		

✓ RSB 1119-93

WE
NA

17

BM-1 NE COR. CONC. PAD.

MWD-1 GED

" CASS

" RISER

TP

TP

TP

TP

MWD-2 GED

" CASS

" RISER

TP

TP

STECK & PHILBIN
C40 SITE

LEVELS

154.73

3.30 154.75

1.15	53.58
------	-------

1.21	1.53.52
------	---------

1.49	155.01
------	--------

24.51	30.50
-------	-------

0.95	131.45
------	--------

22.71	108.74
-------	--------

0.33. 109.07

12.75 : 96.32

10.11	23.96
-------	-------

10.15	78.92
-------	-------

11.00	109.72
-------	--------

1.4.9	108.43
-------	--------

10.20 | 118.63

8.54 | 110.02

0.95 | 111.04

11.05	95.70
- 0.012	

✓R5B 11-19-95

WR
NA

HW-B 620

44 CLASS

14	2550
----	------

15

tk

WFO - 4 620

" EAS

11	24502
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十

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24 1

APPENDIX F

DATA VALIDATION

Data Validation

Six environmental samples, one soil and five groundwater, as well as a drill water sample, a foam sample and trip blank were collected during the field investigation for the Preliminary Site Assessment (PSA) at the Steck & Philbin Landfill. The environmental samples were analyzed for Target Compound List (TCL +30) substances and the drill water, foam and trip blank were analyzed for TCL Volatiles (TCL VOA +10) in accordance with the 12/91 New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP). The data was validated by C.C. Johnson & Malhotra, a subconsultant to Dvirka and Bartilucci Consulting Engineers. The results of the validation process are summarized in Table 1.

The semivolatile fraction of sample SPMW2 (5-7) was reanalyzed at a 1:20 dilution since the concentration of bis(2-ethylhexyl)phthalate exceeded the instrument calibration range. All results should be taken from the initial undiluted run with the exception of bis(2-ethylhexyl)phthalate which should be taken from the diluted run, 24,000 ppb. Sample SPMW2 (5-7) was inadvertently identified as SPMW4 (5-7) on the chain of custody, therefore all the raw sample data is identified as SPMW4 (5-7).

Compounds have been qualified based on blank results. See Table 1 for a detailed list. Chlorobenzene in sample SPMW3GW and 2-methylnaphthalene in sample SP-MW-2-GW have been qualified as tentatively identified since major ions present in the standard mass spectra were not present in the sample spectra.

All data is deemed valid and usable for environmental assessment.

Table 1

**DATA VALIDATION SUMMARY
CONTRACTUAL COMPLIANCE SUMMARY
(NYSDEC 12/91 ASP)**

<u>Sample ID</u>	<u>Matrix</u>	<u>VOA</u>	<u>BNA</u>	<u>Pest/PCB</u>	<u>Metals</u>
SP-DW-1	Drill Water	OK	NA	NA	NA
SP-MW2 (5-7)	Soil	OK	OK ⁸	OK	OK ¹
SP-MW-1-GW	Water	OK	OK	OK	OK ^{5,7}
SP-MW-2-GW	Water	OK ²	OK ⁴	OK	OK ^{5,6,7}
SP-MW-3-GW	Water	OK ^{2,3}	OK	OK	OK ^{5,6,7}
SP-MW-4-GW	Water	OK	OK	OK	OK ^{5,7}
SP-MW-5-GW	Water	OK	OK	OK	OK ^{5,7}
Trip Blank	Water	OK	NA	NA	NA

Data Validation Summary
Definition of Table Qualifiers

OK: Data is 100% contractually compliant

OK, #: Data is 100% contractually compliant, but qualified based on data validation. (See below for a detailed explanation)

- 1: Nickel, antimony, beryllium and cadmium have been qualified as nondetect since the sample concentrations were less than 5 times the blank concentration.
- 2: Trichloroethene has been qualified as nondetect since the sample concentration was less than the concentration found in the trip blank.
3. Chlorobenzene result has been qualified as a tentative identification. Major ions present in the standard mass spectra were not in the sample spectra.
4. 2-methylnaphthalene has been qualified as a tentative identification since major ions present in the reference (standard) mass spectra were not in the sample spectra.
5. Copper qualified as estimated, possibly biased low due to a negative blank value.
6. Chromium has been qualified as nondetect since the sample concentration was less than five times the blank concentration.
7. Antimony, silver and thallium have been qualified as estimated with possible false negatives being reported due to negative blank results.
8. Sample was reanalyzed at a 1:20 dilution since the concentration of bis(2-ethylhexy)phthalate exceeded the calibration range in the initial run. The result for the above compound should be taken from the diluted run SPMW4RE.

APPENDIX G

ADDITIONAL REFERENCES

**Economy[®]**

P.O. BOX 35422

MUD PRODUCTS CO.

HOUSTON, TEXAS 77235-5422

Phone: (713) 723-8416 • Toll Free: 800-231-2066 • Fax: (713) 723-1845 • Telex: 703692 ECONOMY MUD UD

September 24, 1993

Ms. Maria Wright
D & B Engineers
FAX 516/364-9045

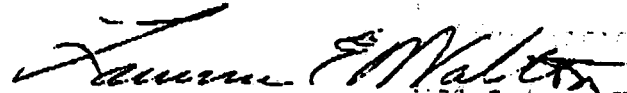
Dear Ms. Wright:

This is to transmit further information on our product POLY-FOAMER. POLY-FOAMER is biodegradable, with the ultimate decomposition products being:

Carbon Dioxide
Ammonium Sulfate
Water

Thank you very much for your interest in our products.

Yours truly,


Lawrence E. Walton



Economy*

MUD PRODUCTS CO.

P. O. BOX 35422

HOUSTON, TEXAS 77235-5422

PHONE: (713)723-8416 • OUTSIDE TEXAS: 800 231-2068 • TELEX: 703892 ECONOMY MUD UD

POLY-FOAMER

TYPICAL PHYSICAL PROPERTIES

Chemical Composition	Sodium Salt of Sulfated Linear Alcohol Ethoxylate
Appearance	Liquid
pH, as is	7.5 to 8.5
Activity, % (by cationic titration)	45 - 49
Total Solids, %	48 - 53
Water, % (Karl Fisher)	34 - 39
Alcohol Content, % (Isopropanol)	14 - 17
Non-ionic, %	3.0
Chlorides, % (NaCl)	3.0
Buffer Action, %	0.1 - 0.2
VCS Color, Hellige	4
Specific Gravity, @ 20°C.	1.0419
Pounds per gallon	8.69

ROSS-MILES FOAM NUMBERS IN MILLIMETERS

Foaming properties of 0.2% solution at 25°C.

SOLVENT	INSTAN- TANEOUS	AFTER 60 SECONDS	AFTER 300 SECONDS
Distilled Water	190	168	165
Hard Water (250 ppm)*	193	173	170
Synthetic Sea Water **	184	159	157

* $MgCl_2$ and $CaCl_2$, calc. as $CaCO_3$ ** 4% NaCl and 0.2% $CaCl_2$

WATER TABLE CONTOURS AND LOCATION OF OBSERVATION WELLS IN SUFFOLK COUNTY, NEW YORK M.

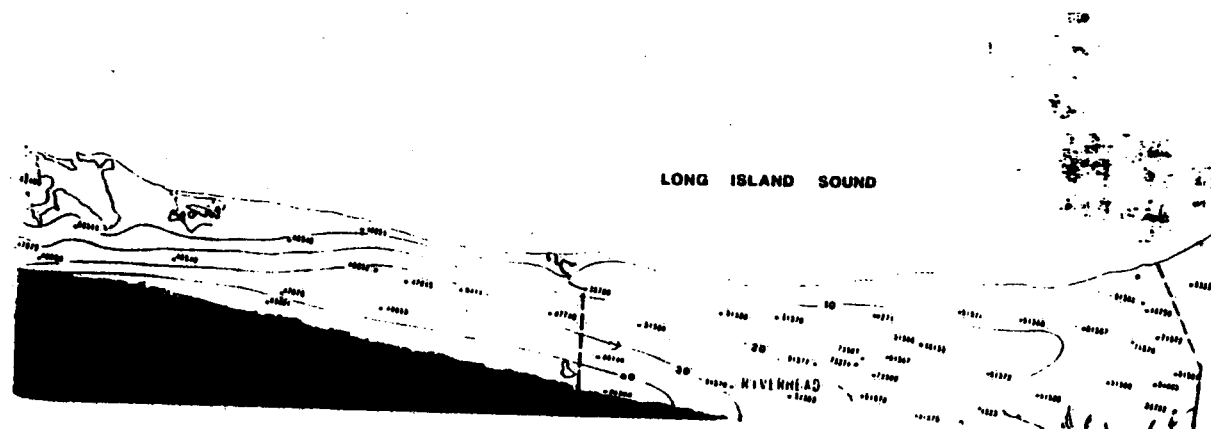
PREPARED BY

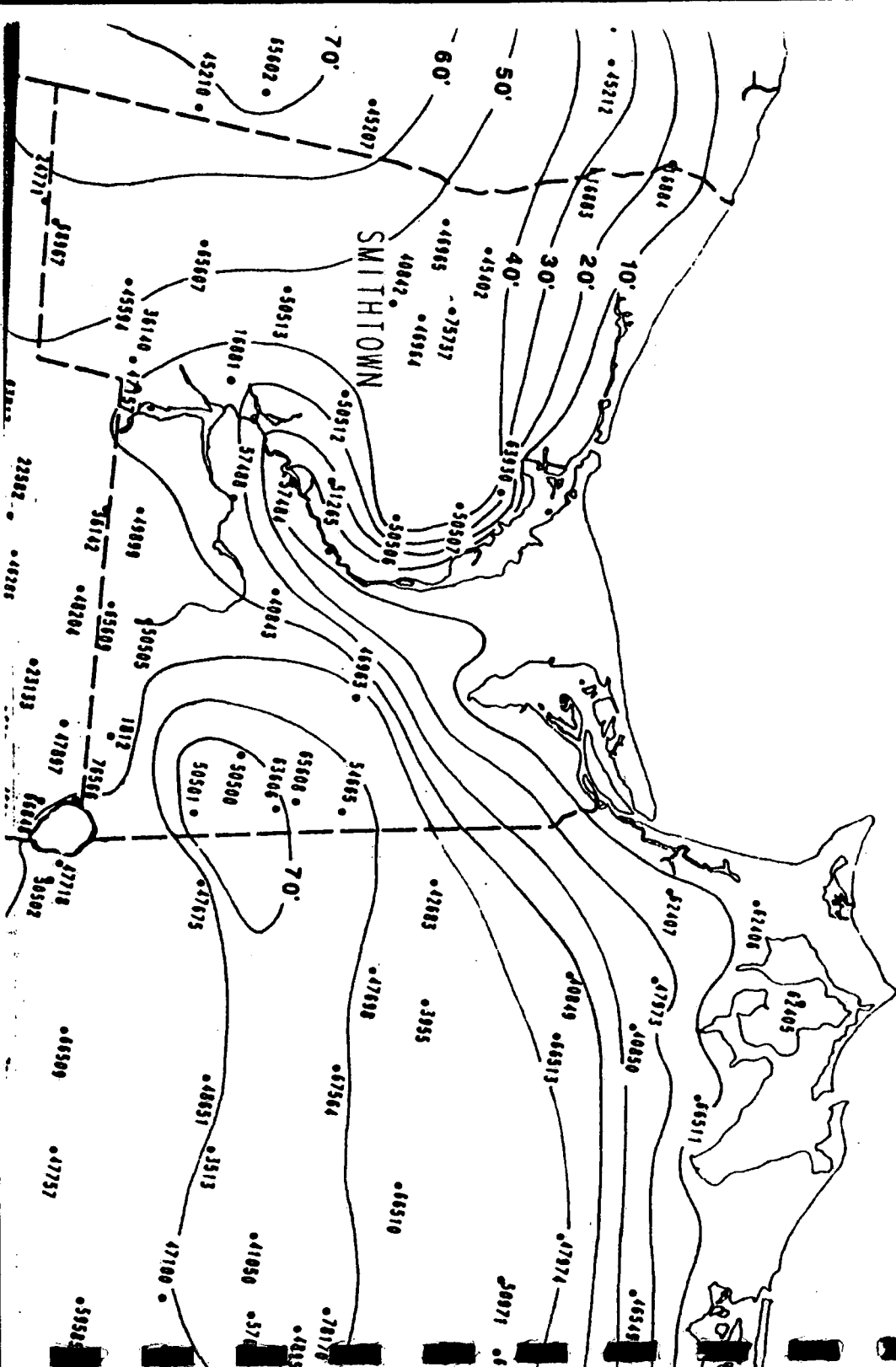
SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES

MARY E. HIBBERD, M.D., M.P.H., COMMISSIONER

JOSEPH H. BAIER, P.E., ACTING DIRECTOR, DIVISION OF ENVIRONMENTAL QUALITY

DENNIS MORAN, P.E., ACTING CHIEF ENGINEER



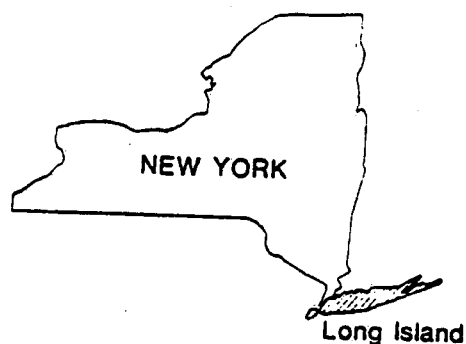


UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

**THICKNESS AND HYDROGEOLOGY OF AQUIFERS AND
CONFINING UNITS BELOW THE UPPER GLACIAL AQUIFER
ON LONG ISLAND, NEW YORK**

By

Julian Soren and Dale L. Simmons



Sheet 1: A. Topography

Sheet 2: B. Bedrock surface

C. Thickness and extent of Lloyd aquifer

D. Thickness and extent of Raritan clay

Sheet 3: E. Thickness and extent of Magothy aquifer

F. Thickness and extent of Monmouth greensand
and Jameco aquifer

G. Thickness and extent of Gardiners clay

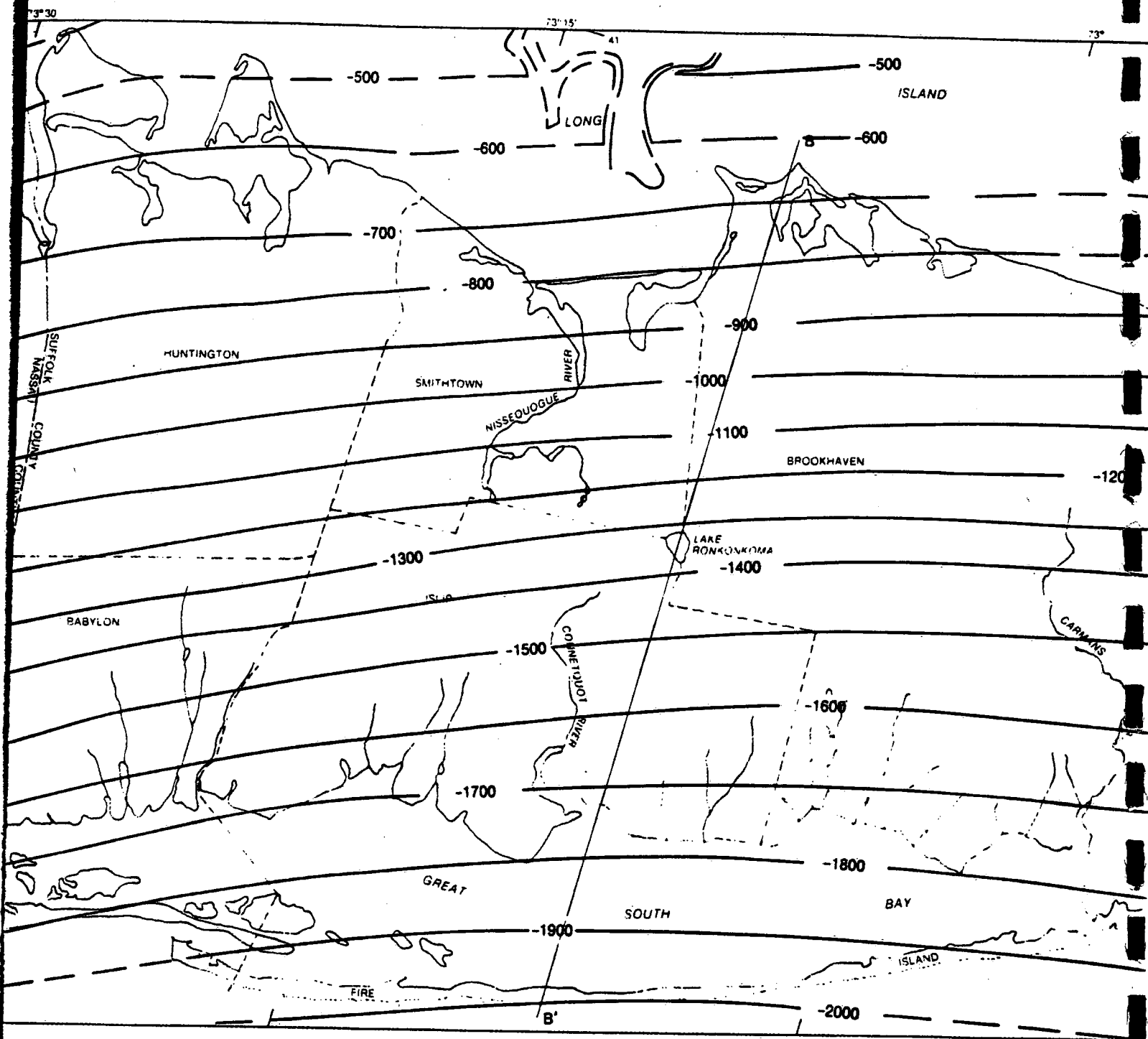


Prepared in cooperation with the
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

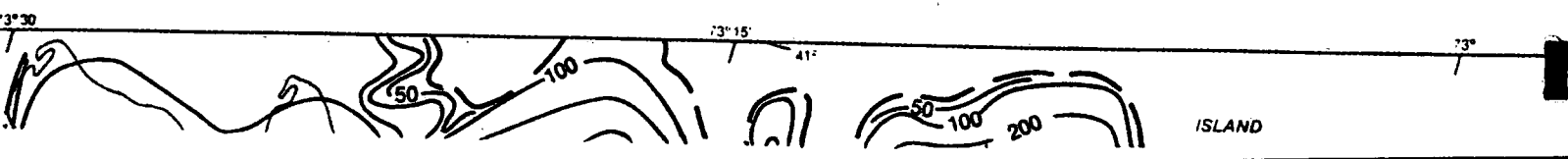
WATER-RESOURCES INVESTIGATIONS REPORT 86-4175

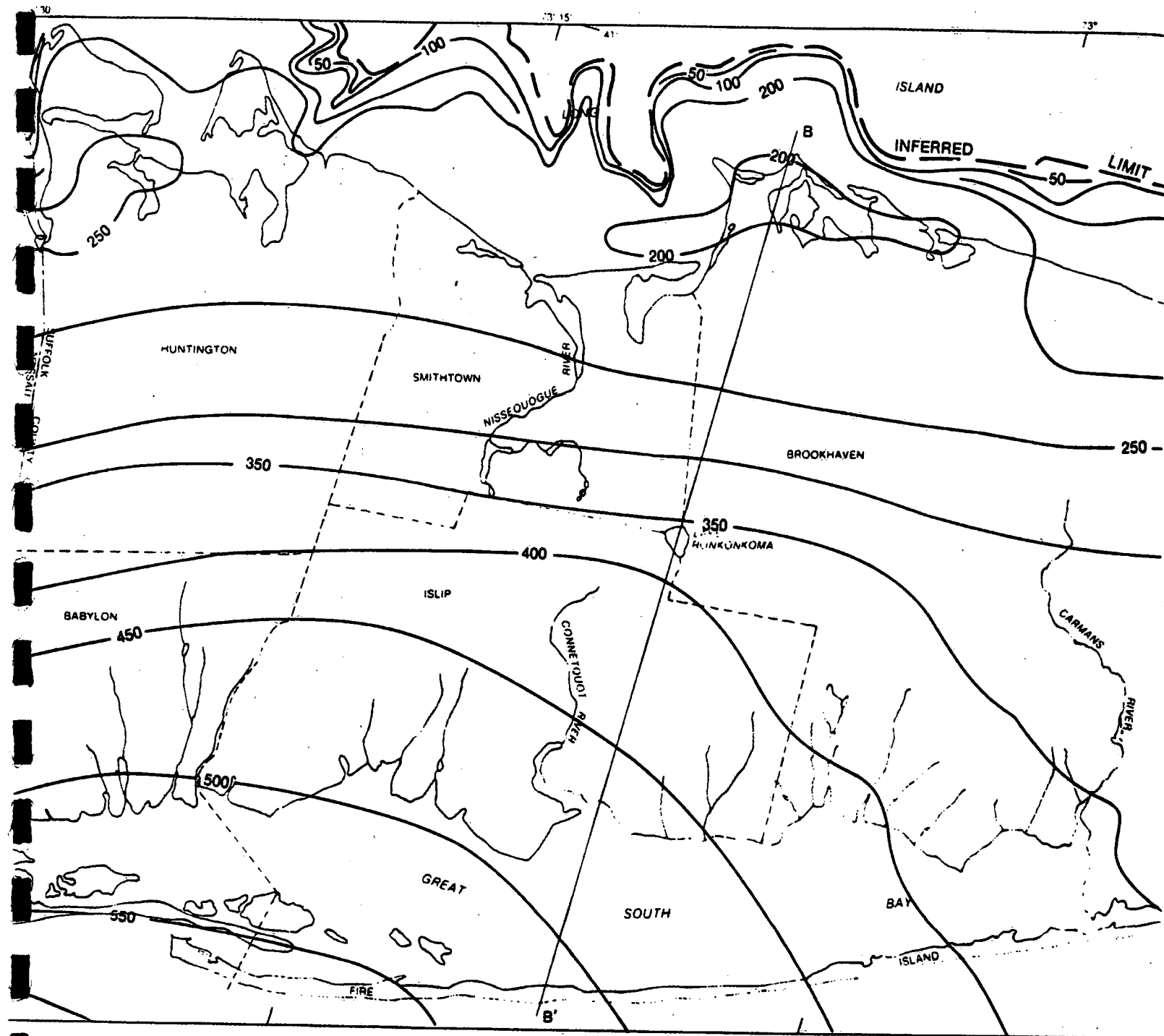
Syosset, New York

1987

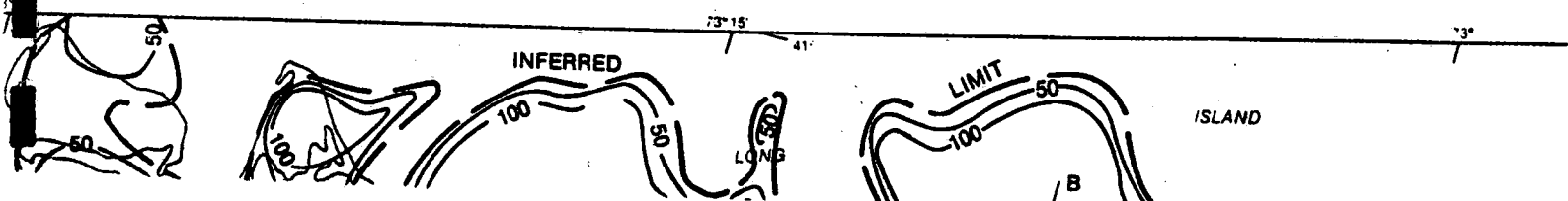


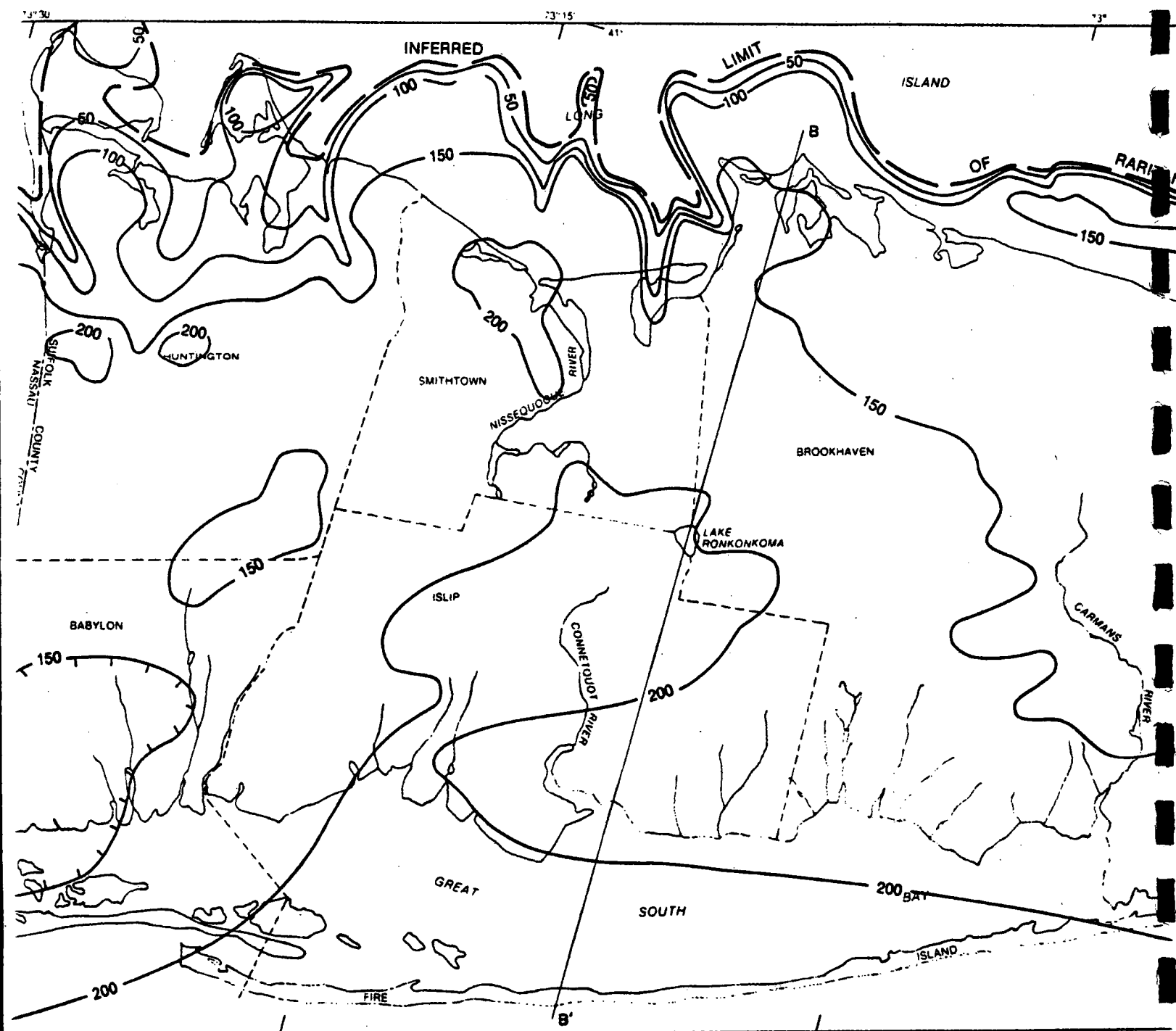
B. Bedrock Surface
Elevation MSL





C. Lloyd Aquifer
Thickness (Feet)





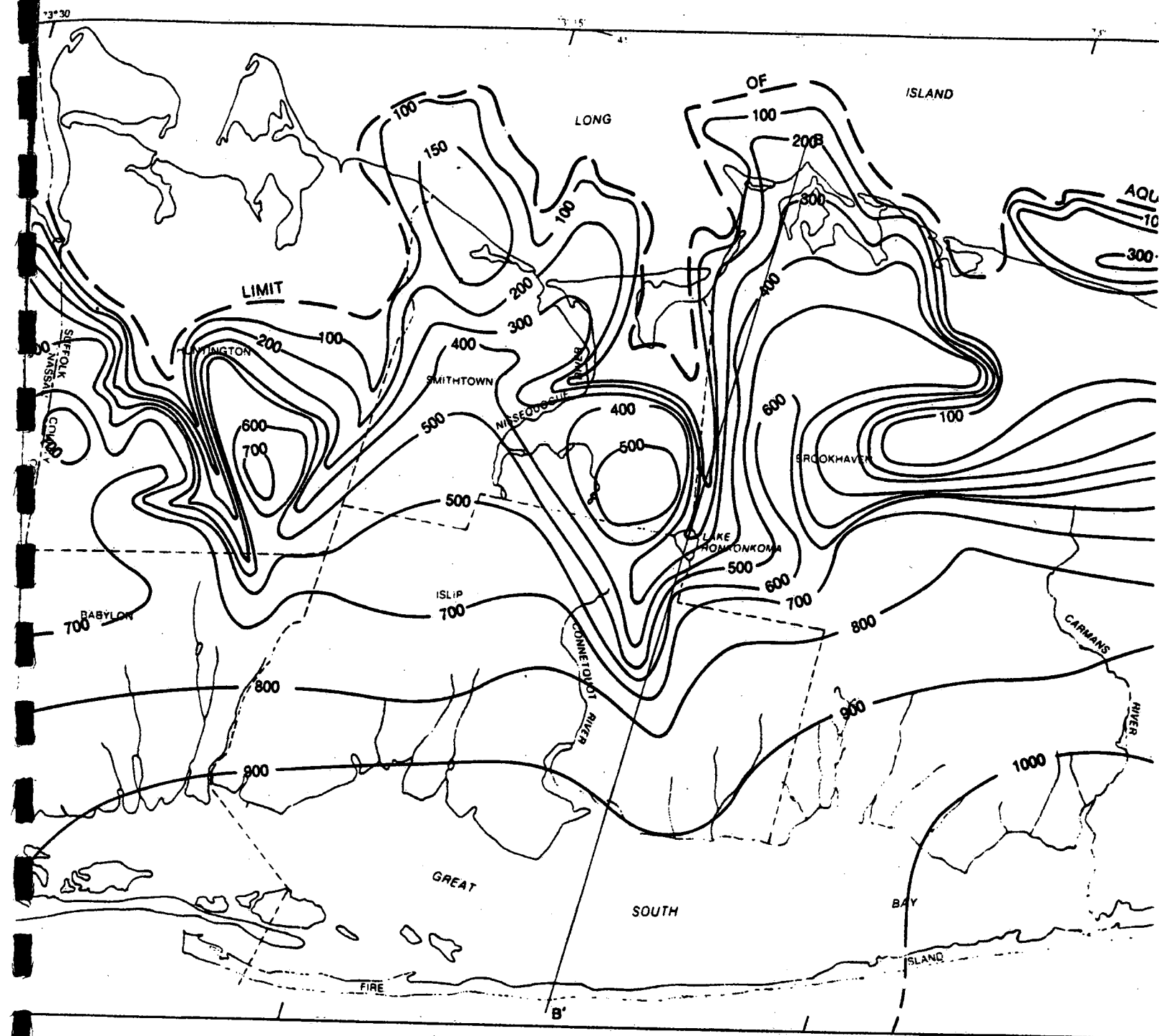
D. Raritan Clay

Thickness (Feet)

THICKNESS AND HYDROGEOLOGY OF AQUIFERS AND CONFINING UNITS BELOW

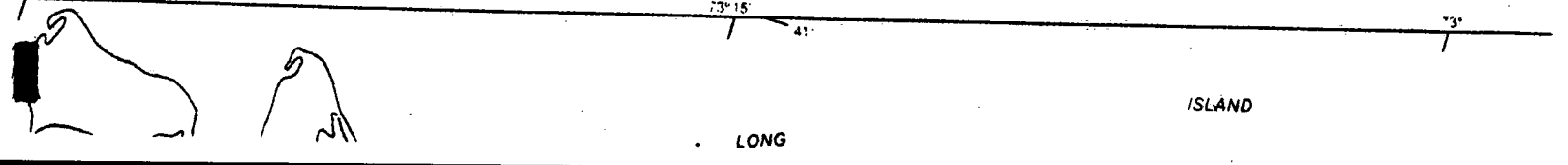
By

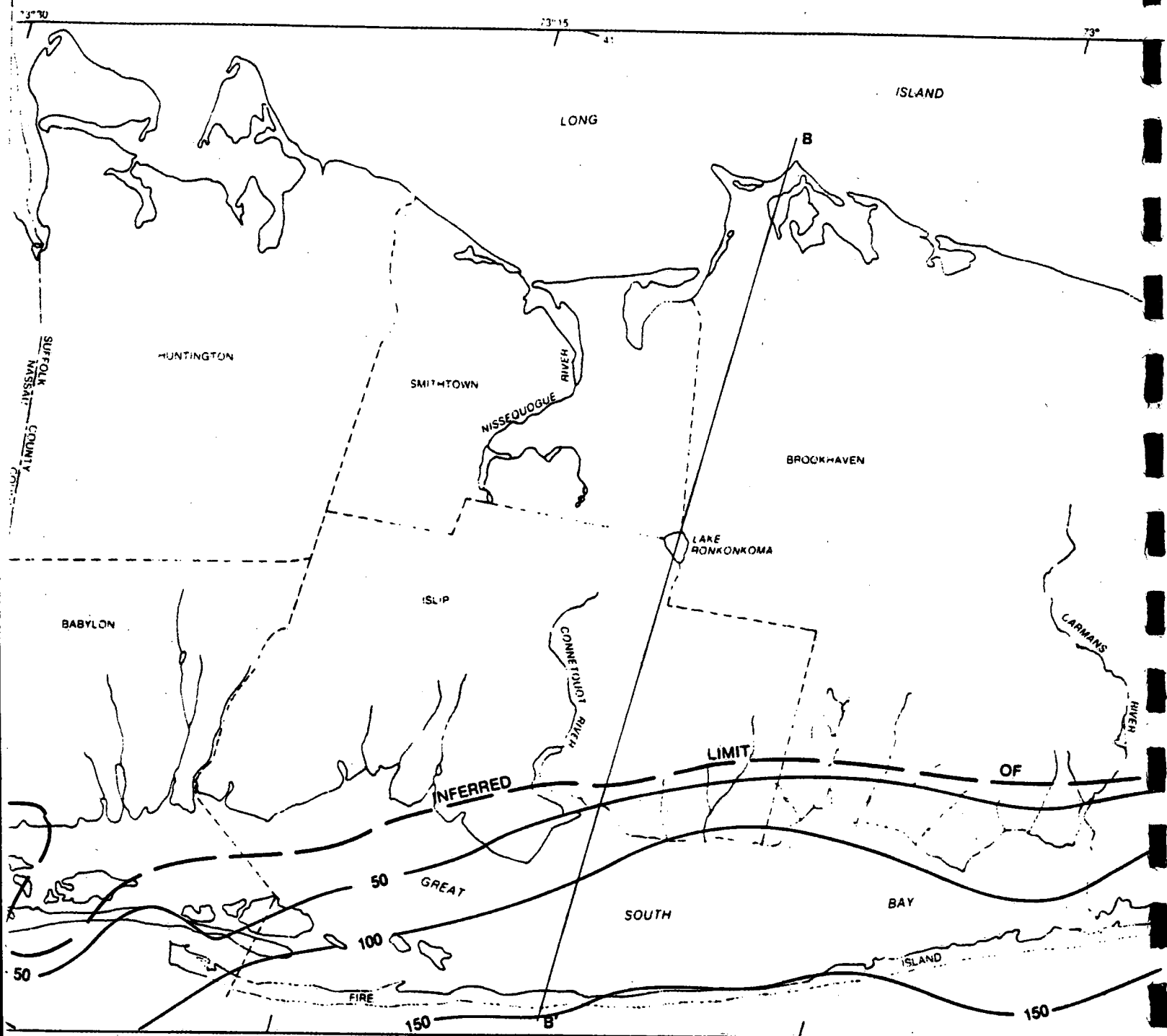
Julian Soren and Dale L. Sim



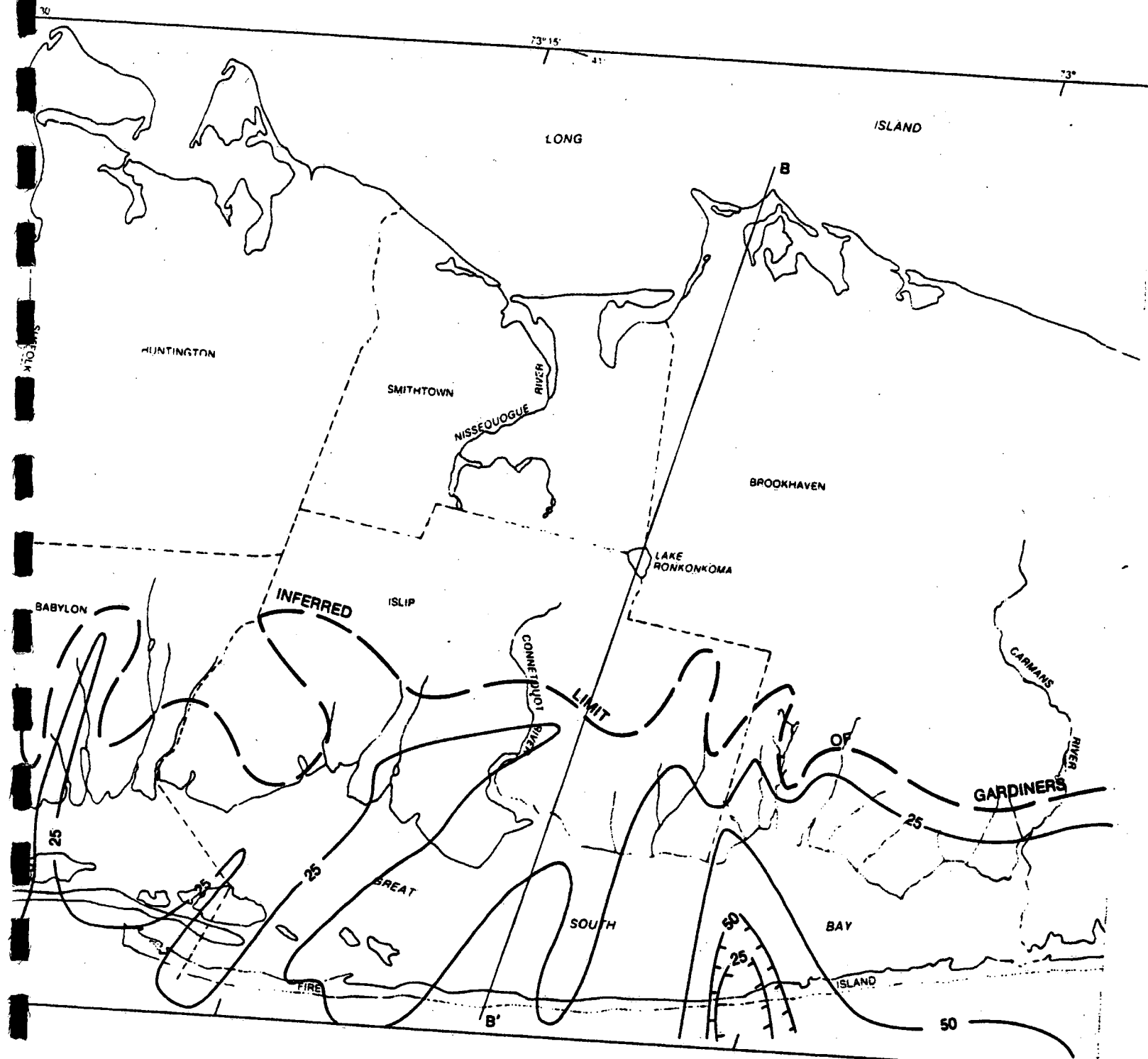
E. Magothy Aquifer

Thickness (Feet)





F. Monmouth Greensand
Thickness (Feet)



G. Gardiners Clay
Thickness (Feet)

NESS AND HYDROGEOLOGY OF AQUIFERS AND CONFINING UNITS BELOW THE

By
Julian Soren and Dale L. Simmo

RECEIVED
MAR 18 1985

Hand delivered
3/18/85

OLD
DEC REGION 1

Groundwater Monitoring Plan
For
Steck-Philbin Development Co.
Kings Park, NY

March 15, 1985

Steven L. Samet
N.Y. P.E. 53943



The plan shows that the north-south location of the wells can be shifted to allow for optimum equipment access.

Monitoring wells will not be installed until locations have been approved by NY DEC and a minimum time of 72 hours has elapsed after notifying NY DEC of intent to drill.

The water table map indicates that the water table will be found at elevation 48. The wells will penetrate approximately 10 feet into the first water bearing stratum encountered, subject to confirmation by New York DEC.

List of Wells Within One Mile of Site

Northeast

- 1) S-20799
- 2) S-13248
- 3) S-27192
- 4) S-64062
- 5) S-15899
- 6) S-16129
- 7) S-27191
- 8) S-75737

Northwest

- 9) S-46965
- 10) S-67795
- 11) S-27243
- 12) S-29306
- 13) S-40333
- 14) S-22829
- 15) S-37179
- 16) S-31192
- 17) S-142
- 18) S-45373
- 19) S-57412
- 20) S-35020
- 21) S-45402
- 22) S-72277
- 23) S-71365

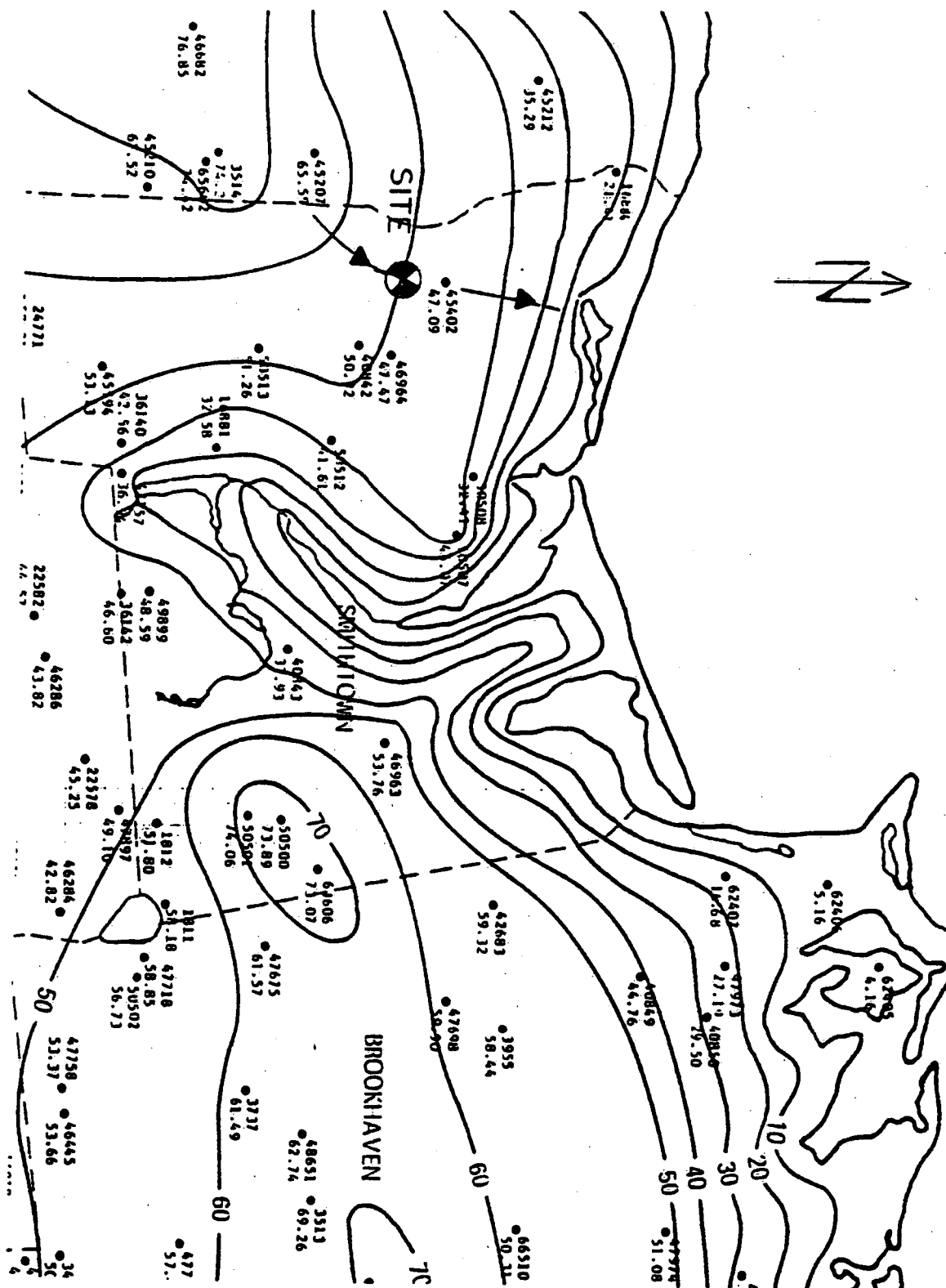
Southwest

- 24) S-18706
- 25) S-31938
- 26) S-10902
- 27) S-26423
- 28) S-22398
- 29) S-13923
- 30) S-53361
- 31) S-33006
- 32) S-31912T

Southeast

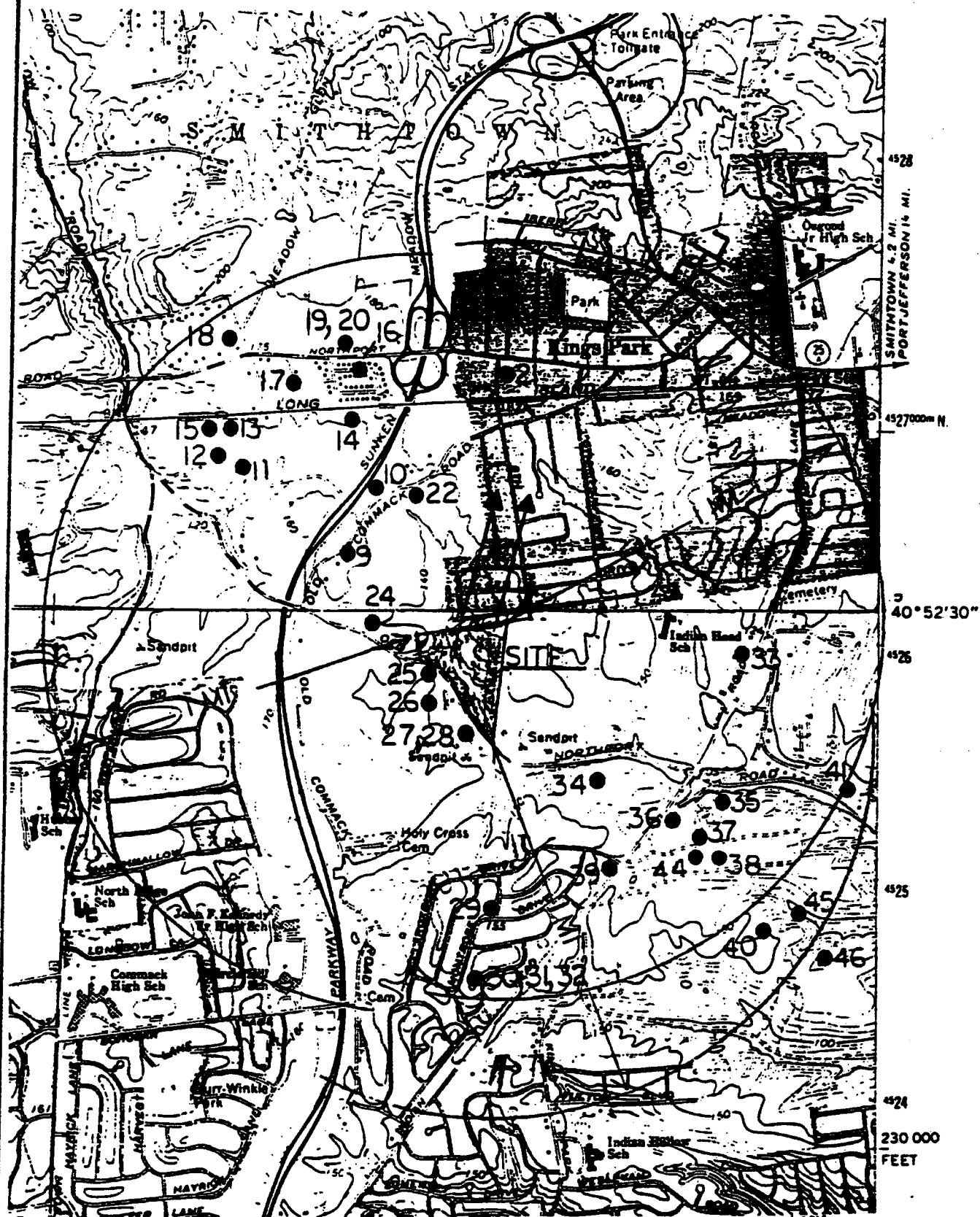
- 33) S-12452
- 34) S-21932
- 35) S-24136
- 36) S-33357
- 37) S-36202

38) S-23393
39) S-46964
40) S-29786
41) S-44093
42) S-36292
43) S-46965
44) S-74176
45) S-76535
46) S-74947



→ G.W. FLOYD

$$1'' = 10400'$$



GREENLAWN QUADRANGLE

→ G.W. FLOW

VICINITY PLAN

1" = 2000'

● WELL

Groundwater Monitoring Plan
for R. Steck and G. Philbin Development Co.
Kings Park, New York

In conformance with requirements of the New York Department of Environmental Conservation, a groundwater monitoring plan is hereby proposed for the R. Steck and G. Philbin Development Company site, located in Kings Park, New York.

Reference is made to the following maps:

- a) Vicinity plan, 1" = 2,000 feet
- b) Groundwater contour map, 1" = 10,400 feet
- c) Site plan of proposed project, 1" = 120 feet

The vicinity plan shows the location of wells within one mile of the project site. The water table map shows water table elevation contours. Streamlines, which are sketched in perpendicular to the contours, indicate that the groundwater is flowing on a bearing of about N. 14° E. in the vicinity of the site. Flow lines indicating this direction of travel are also shown on the vicinity maps and on the project site plan.

Monitoring Well Locations

Proposed monitor well locations are shown on the project site plan. One well upgradient of the fill area is shown (#1), approximately in the middle of the property line facing Old Northport Road. Two downgradient wells are shown along the northern site boundary, (#2 & #3). These are shifted somewhat toward the east in order to allow for the direction of groundwater flow and future coverage of the unfilled portions of the site.

State of New York
Department of Conservation
WATER POWER AND CONTROL COMMISSION

Long Island Well Application No. W-1282

In the Matter of the Application

- of -

ALEXANDER IZZO and NEAL IZZO

for approval of the sinking of a
well at their Sand and Gravel
Plant, Old Northport Road, Commack,
Town of Smithtown, Suffolk County.

D E C I S I O N

Application filed March 27, 1953

Hearing held in Smithtown Branch,
April 10, 1953

Decision May 5, 1953

DECISION ON LONG ISLAND WELL APPLICATION NO. W-1282

PROCEEDINGS

This is an application made under the provisions of Section 521-a of the Conservation Law for approval of a well to be put down in Suffolk county.

Petition verified by Alexander Izzo, partner, on March 24, 1953 and filed in the office of the Water Power and Control Commission on March 27, 1953. Due notice of the hearing was given by publication in the Smithtown Star and the hearing was held before Arthur H. Johnson, Associate Engineer of the Commission, in the Town Hall in Smithtown Branch, on April 10, 1953, at 10 o'clock in the forenoon. Petitioner was represented at this hearing by Roland A. Crowe, Esq., its attorney. Alexander Izzo also appeared in person. No objections were filed and no one appeared in opposition.

PROJECT

Applicant proposes to sink one new well on a tract of land located on the west side of Northport-Kings Park Road, about two miles north of Route 25, in the town of Smithtown, Suffolk county. Water pumped from the proposed new well is to be used for washing sand and gravel and after use is to be returned into the ground through an open pit located adjacent to the well.

FINDINGS OF FACT

1. Alexander and Neal Izzo, partners, are owners of a tract of about 20 acres near Kings Park in the town of Smithtown, presently being operated as a commercial sand and gravel pit.
2. Well water is desired for use in the washing of sand and gravel in its preparation for commercial use.
3. Proposed well is to be sunk with an 8-inch diameter casing and screen from 170 to 180 feet deep and equipped with a pump of 200 gallons a minute capacity.
4. The average daily use of well water is estimated to be 120,000 gallons and the annual use about 25 million gallons.

5. All well water after use in washing operations is to be discharged into a large pit located near the well.

6. There is no public water supply available to this plant, the nearest such mains being those of the Kings Park plant of Suffolk County Water Authority located over one mile distant.

7. Sinking the proposed well will not affect any wells used as sources of a public water supply system, the nearest being wells S-3795 and S-3800 of Suffolk County Water Authority located over two miles distant.

CONDITIONS

The Commission finds it to be necessary to protect the interests of the applicant and of the people of the State to impose the following conditions:

- A. Applicant must install suitable connections to enable the discharge of the pump to be measured. Such fittings and the locations thereof will be specified by the Commission.
- B. Applicant shall install, maintain and operate a satisfactory meter or other device to measure and record the amount of water pumped from the proposed well and shall preserve such records. Such measuring device shall be open at all reasonable hours to inspection or test by duly accredited representatives of this Commission or of the local water authorities. Records of the pumpage shall be made available for inspection or transcription. Applicant must report the amount of pumpage monthly to this Commission.
- C. This entire plant and the apparatus connected therewith must at all reasonable hours be open to inspection and test by duly accredited agents of this Commission and of the local water authorities.

INDIAN HEAD



Sand & Gravel Corp.

SAND • GRAVEL • GRIT • FILL
READY-MIXED CONCRETE

Phone Kings Park 2-4238

OLD NORTHPORT-KINGS PARK ROAD
COBESMACK, L. I. (INDIAN HEAD SECTION)

Address All Mail To:
P. O. Box 122, Smithtown, N. Y.

Re: Application No. W-1282
Att: Mr. Arthur H. Johnson,
Associate Engineer.

State of New York,
Conservation Department,
Division of Water Power and Control,
90-79 Sutphin Boulevard,
Jamaica 2, New York.

Dear Sir:

We have your letter of recent date pertaining to the installation of our well at the above site.

After having sunk the well to a depth of approximately 200 ft. we did not have an ample supply of water. Hence, we were forced to continue the sinking of this well until our requirements were achieved. We do hope, however that the additional drilling shall be in order with you. It certainly caused us much delay and expense.

We shall therefore appreciate a modification of the terms of the decision to include the 488 ft. depth.

Very truly yours,

ALEXANDER IZZO, PRES.

STATE OF NEW YORK,)
COUNTY OF NASSAU,) ss.

Alexander Izzo being duly sworn saysthat
he is the president of Indian Head Sand & Gravel Corp,
to me known and known to me to be the individual who executed
the foregoing letter and acknowledged that he executed
same.

GEORGE W. COSKIANO
Notary Public, State of New York
Residing in Nassau County
Notary License No. 123456789
Commission Expires March 2, 1967



REPORTING OFFICER

[illegible]

12-1-1967

1922-12-23-
7-2-23

County.....

Well No. 1-1902T
(on preliminary report)
LOG
Ground Surf., El. 40 ft. above sea

LOG
Surf., EL. 0 ft.
Aft.
Vft.
Top of Well

NOTE: Show log of well—materials encountered, with depths below ground surface, water-bearing beds and water levels in each, casing, screens, pump, additional pumping tests and other matters of interest. Describe repair job.

See Instructions as to Well Drillers' Licenses and Reports—pp. 5-7.

3-10
 fine sand
 10-20
 fine sand
 10-30
 white sand
 30-50
 brown sand
 50-70
 white sand
 70-80
 brown sand
 80-100
 brown sand
 100-120
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 120-140
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 140-160
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 880-900
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 920-940
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 940-960
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 960-980
 brown sand
 980-1000
 brown sand

County Westchester W-27 ORIGINAL-TO COMMISSION

State of New York
Department of Conservation
Division of Water Power and Control
COMPLETION REPORT—LONG ISLAND WELL.

Well No. 2702
(on preliminary report)
LOG
Ground Surf., El. 100 ft. above sea
A 100 ft.
V 438 ft.
Top of Well

Owner Chas. L. ...
Address 100-44 ...
Location of well Indian Head Park
Depth of well below surface 438 feet
Depth to ground water from surface 60 feet

CASINGS:

Diameter 8 in. 12 in. 12 in. 12 in.
Length 320 ft. 130 ft. 130 ft. 130 ft.
Sealing ...
Casings removed ...

SCREENS: Make Cole Openings 25
Diameter 12 in. 12 in. 12 in. 12 in.
Length 20 ft. 130 ft. 130 ft. 130 ft.
Depth to top from top of casing 418 ft.

PUMPING TEST: Date ... Test or permanent pump? Perm
Duration of Test ... days ... hours
Maximum Discharge 150 gallons per minute
Static level prior to test 60 ft. ... in. below top of casing
Level during Max. Pumping ... ft. ... in. below top of casing
Maximum Drawdown 30 ft.
Approx. time of return to normal level after cessation of pumping ... hours ... minutes

PUMP INSTALLED:

Type Turbine Make ... Model No. ...
Motive power Electric Make V.S. H.P. 15
Capacity 150 g.p.m. against 92 ft. of discharge head
No. bowls or stages 10 S.T. 172 ft. of total head

DROP LINE:

Diameter ... in. ... in.
Length ... ft. ... ft.

SUCTION LINE:

Use of water ...

Work started 4-15-1953 Completed Nov 4-1953
Date Dec 18-1953 Driller Buffell & Co.
License No. 14

NOTE: Show log of well—materials encountered, with depth below ground surface, water bearing beds and water levels in each casing, screens, pumps, additional pumping tests and other matters of interest. Describe repair job.
See Instructions as to Well Drillers' Licenses and Reports—pg. 5-7.

420
Screen is
set 18'
below
casing

438

REC'D. COMM. 1953

State of New York
Department of Conservation
WATER RESOURCES COMMISSION

Long Island Well Application No. W-2256

In the Matter of the Application

- of -

INDIAN HEAD SAND & GRAVEL CORP.

for approval of the sinking of a
well at their Sand & Gravel Plant
at Old Northport - Kings Park Road,
Town of Smithtown, Suffolk County,
New York

D E C I S I O N

Application filed October 7, 1963

Hearing held in Westbury,
October 17, 1963

Decision November 7, 1963

DECISION ON LONG ISLAND WELL APPLICATION NO. W-2266

PROCEEDINGS

This is an application made under the provisions of Section 476 of the Conservation Law for approval of a well project in Suffolk County.

Petition verified by Alexander Izzo, President of Indian Head Sand & Gravel Corp. on October 4, 1963 and filed in the office of the Water Resources Commission on October 7, 1963. Due notice of the hearing was given by publication in the Smithtown News and the hearing was held before Walter G. Waterman, Senior Engineer of the Commission, in the office of the Commission in Westbury, on October 17, 1963 at 10 o'clock in the forenoon. The petitioner was represented at the hearing by Neal Izzo, Secretary of Indian Head Sand & Gravel Corp. No objections were filed and no one appeared at the hearing in opposition to approval of the project.

PROJECT

Indian Head Sand & Gravel Corp. proposes to sink a well with a 10-inch diameter casing to a depth of 114 feet and to equip it with a pump having a capacity of 800 gallons a minute. Well water is to be used for all purposes including drinking and sanitary uses and washing sand and gravel. All water, after use, is to be returned to the ground through recharge facilities.

FINDINGS OF FACT

1. Indian Head Sand & Gravel Corp. is a domestic corporation engaged in mining sand and gravel at its property on the north side of Old Northport-Kings Park Road about 0.75 miles west of Indian Head Road. The principal office of the corporation is at Pine Hollow Road, in Oyster Bay.

2. As no public supply of water is available in this area the applicant proposes to sink a well about 150 feet north of Old Northport-Kings Park Road to secure water for washing sand and gravel and for drinking and sanitary purposes. The proposed well is to have a 10-inch diameter casing sunk to a depth of 114 feet and is to be equipped with an electrically-operated deep well turbine pump having a capacity of 800 gallons a minute.

3. It is estimated that about 384,000 gallons of water will be used per day and that the total annual use will be 76.8 million gallons.

4. Except for a negligible amount of water which will be lost through evaporation, all well water, after use, is to be returned to the ground. Water used for washing sand and gravel is, after use, to be discharged into a recharge basin located about 200 feet north of the proposed well. Water used for sanitary purposes is, after use, to be returned to the ground through cesspools located about 150 feet east of the proposed well.

5. The elevation of the ground water in this location is approximately 60 feet above sea level and the only variation that has occurred in this level has been the result of seasonal fluctuations.

6. The nearest public water supply well to this location is well No. S-15923 located about 0.75 miles to the south at the Indian Head plant of the Suffolk County Water Authority.

7. It appears that to approve this application will cause little net loss to the ground-water resources and should have no permanent effect on any well used as a source of public water supply.

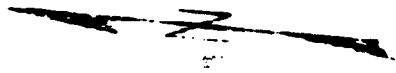
CONDITIONS

The Commission finds it to be necessary to protect the interests of the applicant and of the people of the State to impose the following conditions:

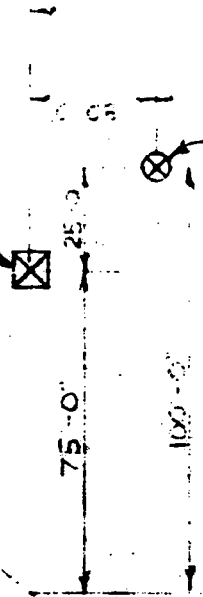
- A. Applicant shall install, maintain and operate a satisfactory meter or other device to measure and record the amount of water pumped from this well and shall preserve such records. Such measuring device and the entire plant and apparatus connected therewith shall be open at all reasonable hours to inspection or test by duly accredited representatives of this Commission or of the local water authorities. Records of the pumpage shall be made available for inspection or transcription. Applicant must report the amount of pumpage from this well monthly to this Commission.

INDIAN HEAD
SAND & GRAVEL

110 W-2266



WELL CHASERS



PROPOSED 200 GPM WELL

DIRT ROAD

OLD NORTHPORT - KING'S COUNTY

County Suffolk

Appl. No. W-2266

Well No. S-26422

WATER RESOURCES COMMISSION

Report on Completed Long Island Well

Owner Indian Head Sand and Gravel Corp.

Address Old Northport-Kings Park Road, Commack

Location Same

Driller C. W. Lauman & Co., Inc. Date Completed 11/4/65

Casings 130 ft. of 8 in.; ft. of in.; ft. of in.

Screen 20'-8" ft. of 8 in. Total depth 150.7 ft.
(below grade)

Pump Electric Deep Well Turbine Motor 30 H.P. General Electric

Capacity 200- g.p.m. (Nominal - by test)

Use of water Washing sand

Other wells on premises S-22398 used solely for domestic purposes.

Well Driller's preliminary report made 12/30/63 final report 3/3/66

Remarks Meter installed. Applicant must submit monthly reports of
pumpage. He must also submit an annual estimate of water pumped from
Well No. S-22398. No cross-connection permitted between the two wells
or to any other source of water supply. At the time of inspection the
plant manager stated the well is presently being pumped at 300 gallons

a minute though application states a maximum pumpage rate of 200 gal-
lons would be used.

Recommendations Issue operating permit limiting maximum pumping rate
to 200 gallons per minute.

Date Inspected 5/10/66 Date Report 5/11/66



Associate Engineer

ORIGINAL-TO COMMISSION

County Westchester

State of New York
Department of Conservation
Division of Water Resources

Well No. S-22388
(on preliminary report)

LOG

Ground Surf., El. ft. above sea

COMPLETION REPORT—LONG-ISLAND WELL

^
.....ft.
v
Top of Well

Owner William Head Land & Gravel
Address Old Northport Rd.
Location of well Kings Park
Dept of well below surface 107 ft feet
Depth to ground water from surface 12 feet

CASINGS:

Diameter 10 in. in. in. in.
Length 107 ft. ft. ft. ft.
Sealing 92
Casings removed none

SCREENS: Make Cook Openings 10
Diameter 10 in. in. in. in.
Length 21 ft. ft. ft. ft.
Depth to top from top of casing 92 ft.

PUMPING TEST: Date Feb 1964 Test or permanent pump? test
Duration of Test 3 days hours
Maximum Discharge 135 gallons per minute
Static level prior to test ft. in. below top of casing
Level during Max. Pumping ft. in. below top of casing
Maximum Drawdown back out ft.
Approx. time of return to normal level after cessation
of pumping hours minutes

PUMP INSTALLED:

Type Turline Make Byron Jackson Model No.
Motive power elec. Make HS H.P. 10
Capacity 100 g.p.m. against ft. of discharge head
No. bowls or stages ft. of total head

DISP LINE:

Diameter 1/2 in. in. in. in.
Length 100 ft. ft. ft. ft.

SUCTION LINE:

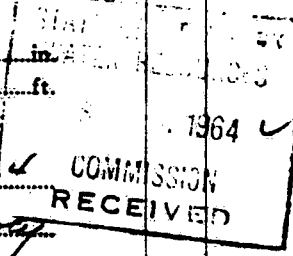
Use of water Flush sand & gravel.

Work started Sept 1963 Completed Feb 1964
Date Sept 1964 Driller W. J. Honey
License No. 15

NOTE: Show log of well—materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job.

See Instructions as to Well Drillers' Licenses and Reports—pp. 5-7.

Sand & gravel
to 67 ft
5 ft red
clay 72 ft
water
Red sand
& gravel to
80 ft.
sand fine
some clay
lumps to
92 ft.
fine white
sand to
107 ft.
poor flow
min dead



County SUFFOLK

ORIGINAL—TO COMMISSION

State of New York

Department of Conservation

Division of Water Power and Control

COMPLETION REPORT—LONG ISLAND WELL

Well No. S-26423

(see preliminary reports)

LOG

Ground Surf., El. _____ ft. above sea

_____ ft.

Top of Well

Owner INDIAN HEAD SAND & GRAVEL

Address NORTHPORT, KINGS PARK RD.

Location of well KINGS PARK, L. I.

Depth of well below surface 150'-8" feet

Depth to ground water from surface 66' feet

CASINGS:

Diameter 8 in. _____ in. _____ in. _____ in.

Length 130 ft. _____ ft. _____ ft. _____ ft.

Sealing _____

Casings removed _____

Screens: Make JOHNSON SS Openings 50 SLOT

Diameter 8" in. _____ in. _____ in. _____ in.

Length 20'-8" ft. _____ ft. _____ ft. _____ ft.

Depth to top from top of casing 130 ft.

PUMPING TEST: Date 11-4-65 Test or permanent pump? T

Duration of Test _____ days 4 hr. 15 min. hours

Maximum Discharge 200 gallons per minute

Static level prior to test 66 ft. _____ in. below top of casing

Level during Max. Pumping 76 ft. _____ in. below top of casing

Maximum Drawdown 10 ft.

Approx. time of return to normal level after cessation

of pumping _____ hours _____ minutes

PUMP INSTALLED:

Type DWT Make JOHNSTON Model No. T

Motive power ELEC Make GENERAL ELEC HP 30

Capacity 200 g.p.m. against _____ ft. of discharge head

No. bowls or stages 8 _____ ft. of total head

DISCH. LINE:

Diameter 6 in. _____ in. _____ in.

Length 90 ft. _____ ft. _____ ft.

SUCTION LINE:

Diameter 6 in. _____ in. _____ in.

Length 10 ft. _____ ft. _____ ft.

Use of water WASHING

Work started 10-28-65 Completed 11-4-65

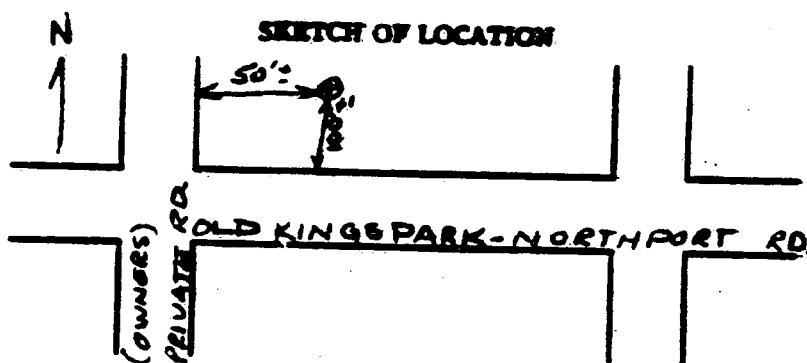
Date 3-21-66 Driller C. W. LAUMAN

License No. 13

Notes: Show log of well—materials encountered, with depth below ground surface, water bearing beds and water levels in each, casings, screens, pump, additional pumping tests and other matters of interest. Describe repair job.

See Instructions as to Well Drillers' Licenses and Reports—pp. 5-7.

STATE OF NEW YORK
WATER RESOURCES
MAR 3 1966
COMMISSION
RECEIVED



Locate well with respect to at least two streets or roads, showing distance from corner and front of lot.

Show North Point.

- 40 MEDIUM TO COARSE BROWN SAND GRITS GRAVEL STONES
- 43 MEDIUM TO COARSE BROWN SAND GRITS GRAVEL
- 3 FINE TO MEDIUM LIGHT BROWN SAND GRITS GRAVEL
- 38 FINE TO MEDIUM BROWN SAND HARD PAN
- 43 FINE TO MEDIUM LIGHT BROWN SAND LAYER OF BROWN CLAY
- 1 FINE WHITE SAND MICA
- 5 FINE WHITE SAND MICA
- 37 SANDY WHITE CLAY
- 32 FINE WHITE SAND STREAKS OF WHITE CLAY
- 1 MEDIUM BROWN SAND + MICA
- 37 SOLID WHITE CLAY + HARD PAN

County Suffolk

ORIGINAL—TO COMMISSION

State of New York
Department of Conservation
Division of Water Power and Control

Well No. S-18706
(on preliminary report)
LOG

Ground Surf. 1 ft. above sea

COMPLETION REPORT—LONG ISLAND WELL

Owner Frank Ambruso, Asphalting Corp
Address 114 North 1st St. Northport, N.Y.
Location of well " " " " " "

Depth of well below surface 146 feet
Depth to ground water from surface 73 feet

CASINGS:

Diameter 4 in. in. in. in.
Length 17.5 ft. ft. ft. ft.
Sealing _____
Casings removed _____

SCREENS: Make Cook Openings 1/4
Diameter 4 in. in. in. in.
Length 6 ft. ft. ft. ft.
Depth to top from top of casing 137 ft.

PUMPING TEST: Date 5/2/60 Test or permanent pump? Permanent
Duration of Test _____ days 2 hours
Maximum Discharge 1.2 gallons per minute
Static level prior to test _____ ft. in. below top of casing
Level during Max. Pumping _____ ft. in. below top of casing
Maximum Drawdown _____ ft.
Approx. time of return to normal level after cessation
of pumping _____ hours _____ minutes

PUMP INSTALLED:

Type Centrifugal Make Fairbanks Morse Model No. _____
Motive power Electric Make _____ H.P. 3/4
Capacity _____ g.p.m. against _____ ft. of discharge head
No. bowls or stages _____ ft. of total head

DROP LINE: SUCTION LINE:
Diameter _____ in. 1 1/2 in.
Length _____ ft. 133 ft.

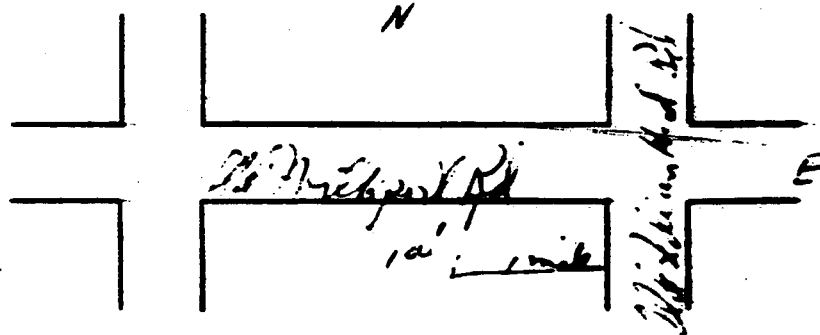
Use of water Office & Shop use
Work started April 27/60 Completed May 3/60
Date May 4/60 Driller Wm. J. ...

License No. ...
NOTE: Show log of well—materials encountered, with depth below ground surface, water bearing beds and water levels in each casing, screens, pump, additional pumping tests and other matters of interest. Describe repair job.
See Instructions as to Well Drillers' Licenses and Reports—pp. 5-7.

LOG
Ground Surf. 1 ft. above sea
ft.
of Well
0' Loam
1' Stone
2' Sand
3' Sand
4' Sand
5' Sand
6' Sand
7' Sand
8' Sand
9' Sand
10' Sand
11' Sand
12' Sand
13' Sand
14' Sand
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93' Sand
94' Sand
95' Sand
96' Sand
97' Sand
98' Sand
99' Sand
100' Sand

RECEIVED

SKETCH OF LOCATION



Locate well with respect to at least two streets or roads, showing distance from corner and front of lot.

Show North Point